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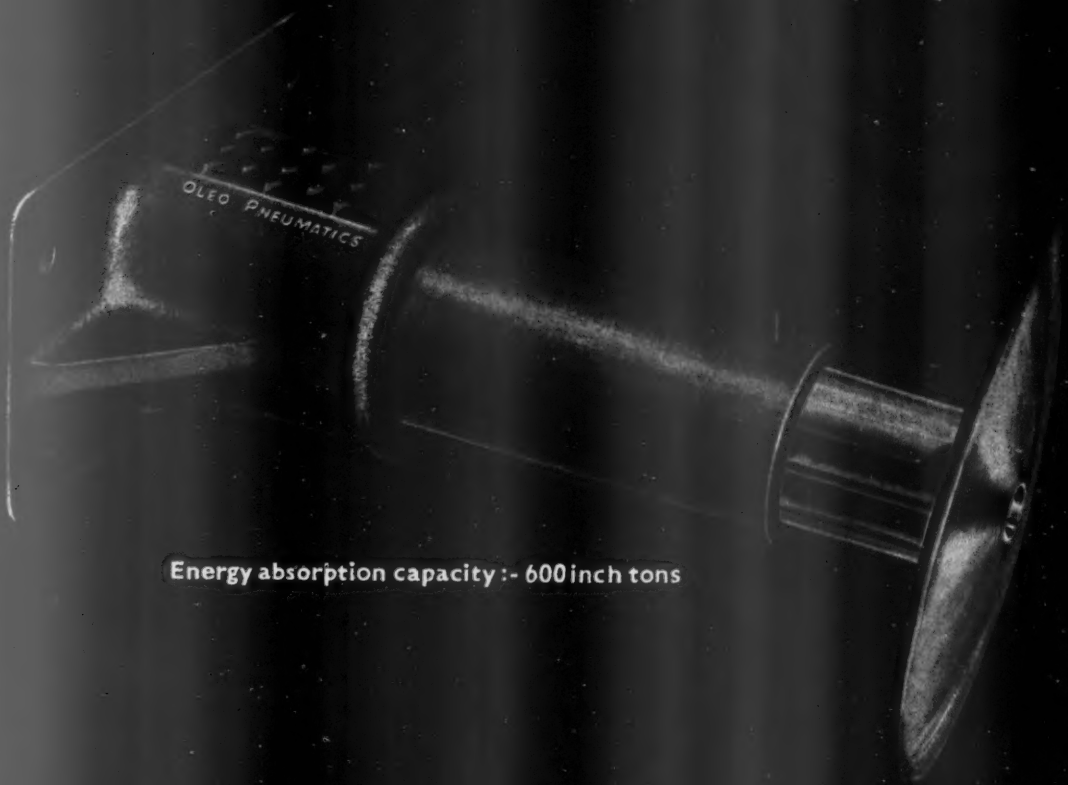
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Co-operation

SPEAKING to a meeting of Ministers, industrialists, and trade unions last Friday, Mr. Heathcoat Amory, the Chancellor of the Exchequer, stated that the current year presents industry with a "remarkably good opportunity to get prices down." He also said: "The important thing now is not to push increases in money incomes ahead of the increase in production. Where unused capacity has been putting up costs, its fuller use will now reduce them." It is claimed commonly that the phrase "increased production" is not easily applied to transport work and, because of this, economic warnings of the type contained in the quotation above are often sidestepped in discussion. It is of interest therefore to note that the Chancellor also said: "It is sometimes forgotten when discussing production trends that industry is only about half the total. The other half includes important services such as distribution and transport. These are difficult to measure, but it is clear that more services were provided last year, and that this went a good way towards offsetting the fall in factory

output. A rising trend of services is, of course, one feature of a rising standard of living." Meanwhile, the National Union of Railwaymen awaits the result of its demand for a wage increase presented to the British Transport Commission on May 6. This is based on the cost of living, an unpromising line of attack, for the official index of retail prices has risen less than 1 per cent during the past year and less than 3 per cent since the last N.U.R. demand was made in September, 1957. Over five years, the cost of living has risen by only 21 per cent against a rise in railwaymen's wages of 36½ per cent. A further rise in wages obviously affects the economic value of that "rising trend of services" referred to so appreciatively by the Chancellor. The other two railway unions, the Associated Society of Locomotive Engineers & Firemen and the Transport Salaried Staffs' Association, were silently represented at the meeting on May 6. In effect, the silence of these two unions spoke more loudly than a massed brigade of N.U.R. branch meetings.

The Late Sir Archibald Boyd

SIR Archibald Boyd, Chairman of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., whose death is recorded elsewhere in this issue, was an outstanding figure in the British carriage and wagon industry. The whole of his career was associated with the company or its predecessors. He was a pupil in the steelworks of Cammell Laird & Co. Ltd. When, in 1929, after amalgamation of a number of carriage and wagon interests, the present company was formed, he joined the board of the combined undertaking and was in charge of the London Office. He was Managing Director for some 20 years, until, in 1953, he relinquished the position, under the company's retirement provisions, while remaining on the board. He was Chairman from 1956, until the time of his death. His contribution to the industry he served so long was of great value; for some 23 years he was Chairman of the Railway Carriage & Wagon Builders' Association. During the 1939-45 war, he was Director-General of Tank Production, Ministry of Supply. Sir Archibald Boyd was a man of wide knowledge and sound judgment. His guidance, based on a lifetime of practical experience, will be greatly missed.

Beyer, Peacock & Co. Ltd.

THE report and accounts of Beyer, Peacock & Co. Ltd. for 1958 together with the Chairman's Review, show that there has been a reduction in over-all Group factory activity. Combined profit, before taxation, was £269,314, which goes against £579,940 for the year to December 31, 1957, and reflects less activity and lower prices. The Group profit after taxation, was £149,849 against £265,458, and of that the profit of Beyer, Peacock & Co. Ltd., after taxation, was £128,816 which compares with £221,590. The balance brought forward from 1957 was £487,381, giving a total available of £616,197. An interim dividend of 3 per cent, less tax, on the ordinary stock was paid on March 10, 1959, but to achieve tax economy no final dividend for 1958 has been declared. Instead an immediate interim dividend for 1959 of 9 per cent will be paid on June 5, and the Chairman forecasts that the final dividend for 1959 will be not less than 12 per cent. It says much for the prescience of the Board that it has built up so large a balance on the profit and loss account as a buffer against the present change-over period.

An Important Associated Company

MR. HAROLD WILMOT, in his review as Chairman of Beyer, Peacock & Co. Ltd., gives some encouraging views on the trend of trade. He points out that 1959 will be a year of consolidation for the Group, which has made agreements which will still further enlarge its horizons. Order books are filling up, and it may not be unreasonable to expect that for 1960 and the following few years the company should enjoy some all-round benefit from improving general trade and a much larger field of operation. It is proposed to operate the parent company as a holding company whose Board will thus be able to give greater consideration to important aspects of group policy. In regard to Beyer Peacock (Hymek), Ltd., which was formed to promote the sale of diesel hydro-mechani-

cal locomotives, it is stated that J. Stone & Co. (Deptford) Ltd. has also become a participant. The order book of this new company already runs into some millions of pounds, and the Chairman states that he is "not displeased with the results of its early efforts."

British Iron & Steel Federation, 1958

THE 1958 Annual Report of the British Iron & Steel Federation mentions co-operation between the Federation and the British Transport Commission in a study of the problems arising from the mechanical handling and the use in works of wagons fitted with automatic couplings and vacuum brakes. Largely as a result of the work of the *ad hoc* Committee on Vacuum Brakes set up by the Federation, the Commission changed its earlier decision to fit all new wagons from January 1, 1958, with Continental-type screw couplings. British-type screw couplings will be fitted to all merchandise and steel-carrying wagons, except bogie bolster wagons, for an interim period until suitable automatic couplings have been developed. The first general reduction in steel prices since January, 1939, came into force in March, 1958. Amongst the increases in the costs borne by the steel industry was the rise of 7½ per cent, in railway freight charges for certain raw materials. The report points out that the Commission has stated its intention to adopt a more flexible charging policy in future, under which rates will be related to the proportion of a company's total raw material and steel traffic which travels by rail. The negotiation of these rates is a matter for each company to arrange individually with British Railways.

Rehabilitating Queensland Railways

A £12,000,000-plan for the further rehabilitation of the Queensland Railways is expected to be submitted soon to the State Cabinet by Mr. G. Chalk, the Transport Minister. The purchase of additional locomotives and rolling stock is embodied in the proposal because the Government now finds itself in the position where orders placed soon after the war and later, to improve railway services, are running out. The Minister recently called for an estimate of rolling stock requirements for the next five years and is now preparing a report based on this survey. The programme does not include any provision for rehabilitating the Townsville Mount Isa line because this would be a separate undertaking. Mr. G. V. Moriarty, Commissioner for Railways, reported late last year on the need for additional rolling stock to replace obsolete vehicles being written off. He commented that the question of more diesel-electric locomotives and their use in other areas would have to be considered when money was available. The proposals are understood to include construction of suburban passenger coaches, but this will depend on the Government decision whether to electrify the suburban lines or work them with diesel railcars.

Transport Co-ordination in Australasia

DURING February the Commissioners of Australia and New Zealand Railways held a five-day conference in Sydney. One of the principal subjects discussed was the co-ordination of transport services. It was agreed that their various systems were quite capable of handling the major portion of the transport needs of the community, and that at comparatively small cost they could be adapted to meet any expansion likely to occur. The Commissioners pointed out that the most efficient and quickest way to reduce transport costs of all kinds was to use existing rail facilities to the full. This was especially the case in regard to permanent way and rolling stock costs so outstanding on railways, especially as they were reasonably constant. The Commissioners once more urged that expenditure on roads should primarily be devoted to the provision of a transport service complementary to and not in duplication of existing rail services. The conference also agreed unanimously that, though both road and rail transport were essential, available capital should be allotted to the development of both, each as ancillary to the other. Transport services so vital to their countries' and states' financial economy could only be efficient and economical if fully co-ordinated.

Railway Construction in New Zealand

WHILST several unremunerative branches of the New Zealand Government Railways are being closed, the Minister of Railways, Mr. M. Moohan, is reported to have called for a survey, as a matter of urgency, of a railway from Blenheim, on the Christchurch to Picton line, to Nelson, over 60 miles away. A seaport with a population, of some 24,000, Nelson, in the extreme north of the South Island, is now one of the larger communities in the Dominion not served by rail. A line from Nelson in the direction of the West Coast, isolated from the rest of the N.Z.G.R., was closed as unremunerative, after being re-opened in response to popular demand. Construction of a 3-ft. 6-in. gauge railway through difficult country from Blenheim to Nelson would probably necessitate costly engineering works. It is hard to see how such a line could pay its way. Perhaps rail access to Nelson is felt to be a paramount consideration. Public opinion, which in New Zealand, as elsewhere, has not supported the railways to the extent of active encouragement of the use of existing lines, is stated to demand the new railways. It may alter if the survey shows the project is likely to prove very costly.

Western Region Plan to Ease Peak Holiday Travel

THE heavy demands on motive power, rolling stock, and train-paths on Saturdays during the peak holiday months cause great difficulties for British Railways, more particularly when week-end traffic is disproportionate compared with long-distance traffic earlier in the week and at other times of year. Operating costs are increased and punctuality suffers. Attempts to spread the Saturday load include issue of mid-week tickets. The Western Region is making a bid to solve the problem by introducing cheap return tickets for overnight travel on specified dates. Affording a saving to passengers of some 4s. in the £, these tickets will be issued for second class travel between Paddington and principal stations in Devon and Cornwall. They will be available by special trains only for journeys from Paddington on Saturday nights during the high season, from July 18 to August 15, available for return eight or 15 days later. Issue will be strictly limited. The combination of two factors, namely, lightening of the load on Saturdays, and travel at week-ends for those whose holidays must begin and end at the week-end, besides the saving in fare, should go some way to solve the holiday traffic problem.

The Japanese Journal "Permanent Way" in English

WE have received through the courtesy of Dr. Kazuo Tomonaga, Chief of the Structural Design Office, Japanese National Railways, a copy of the first quarterly edition in English of *Permanent Way*, the monthly journal of the Permanent Way Society of Japan. Its foreword explains that the society, is a chartered body established in 1953, and has about 3,000 members. These include engineers of the Japanese National and private railways, consulting engineers, and executives of firms concerned with railway equipment and supplies and of construction contractors. The aims and business of the Society follow closely those of its British counterpart. The idea in publishing the English edition of the journal is to enlist the interest of railway engineers all over the world in investigations and works carried out in Japan. In this first English issue the subjects dealt with are (a) testing curved track for buckling with artificial heating; (b) mud-pumping and settlement of the roadbed; and (c) measurements with track expansion devices on a new bridge. These contributions are amply illustrated with diagrams and photographic reproduction.

Manning Diesel and Electric Locomotives

REPLACEMENT of steam by electric or diesel traction is, or has been, bedevilled in several countries by disagreement with footplate staff on questions of manning. In general, there can be three causes of discontent among staff: loss of overtime and similar payments because of faster running and rationalisation in rostering men and locomotives; reduced employment when there is only one man in the cab; and the strain on one man of being alone in charge of a fast, heavy train. These grievances are by no means always valid. Nor

are the factors mentioned necessarily objected to by engineers. On British Railways, for instance, there is a single manning of multiple-unit electric expresses. The question of footplate manning is causing no major divergencies in staff relations on British Railways. Last week's strike on the French National Railways is reported to have been largely a protest against loss of footplate staff's earnings caused by extension of electric working. The French Government has pointed out that it has been studying the problem, and that the strike was precipitate. These problems usually can be solved, as in Britain, by consultation between management and footplate men's representatives. A survey of practice in footplate manning on railways in a number of countries was published in our February 3, 1956, issue.

Passenger Classes in the Tropics

THE example of the Indian railways in gradually withdrawing second-class accommodation whilst building new third-class vehicles with lying-down accommodation, seems likely to be copied by other railways in Asia and perhaps Africa, as standards of living rise. The result in India will be two classes, upper and lower. It is apparently the intention that most upper-class stock eventually shall be air-conditioned. A good many vehicles already are so fitted, with Stone equipment. The Deputy Minister of Railways, Mr. Shah Nawaz Khan, has stated that three types of third-class sleeping coach are being tested in service. Provision of berths for lower-class passengers greatly reduces the payload of long-distance trains. One may wonder how far it will be possible to add to the comfort of lower-class travel without raising fares. This is a problem which is affecting several railways in African and Asian countries where the travelling public is demanding greater comfort, and road competition is increasing. To satisfy that demand without unduly adding to the weight, or reducing the payload, of the vehicle will tax the skill of mechanical engineers and rolling stock builders.

North British "2" Diesel-Electric Locomotives

BOTH the diesel engines and much of the electrical equipment in the 58 North British Type "2" diesel-electric locomotives for British Railways built for the Eastern and Scottish Regions are of the same basic design as equipment already in service with British Railways. The locomotives are described elsewhere in this issue. The single NBL/MAN Type L12V 18/21S engine is similar to the twin units fitted in the North British and Swindon-built Type "4" 2,000-h.p. diesel-hydraulic locomotives of the Western Region. Many parts of the G.E.C. traction generators and motors are identical to those used on NBL Paxman-engined Type "1" diesel-electric locomotives. The new Type "2" locomotives weigh 72.5 tons in working order and have a maximum tractive effort of 45,000 lb. The 38 allocated to the Eastern Region are for use on the Great Northern Line inner and outer suburban services and local goods services in the London area. Although the first 10 have engines rated to develop 1,000 h.p. at 1,500 r.p.m., the remainder will give 1,100 h.p. at that speed. The capacity of all the sets of electrical equipment is sufficient to deal with the higher power. It is intended eventually to up-rate the engines of the first batch of 10.

Transport Tribunal Interim Report

THE interim report issued earlier this week by the Transport Tribunal appears to concede a large measure of what the British Transport Commission was seeking. Permission will be given to raise passenger fares from their present level of 2d. a mile to a maximum of 3d. a mile, second class, and from 3d. to 4½d. a mile, first class, but the Commission's scheme "as lodged" has been rejected.

On the particular question of early morning fares, London Transport fares, and season tickets, the Tribunal is apparently not satisfied with the Commission's conception of a standard of fares to give a reasonable degree of flexibility. It has agreed that early morning fares should cease, but it has not been decided whether the obligations should stop at once or continue for a time, for how long they should continue, or whether the

fares specified in the 1957 scheme should be increased. It is difficult to understand why the Tribunal is undecided on this point. The disagreement over London Transport fares concerns how large a sum should go to the general reserve. The Commission's proposals were based on securing sufficient revenue to meet all operating expenses, making a contribution of £6,000,000 a year to central charges and a further £5,000,000 a year to go to reserve. The Tribunal wants the London Transport fares increase to be regroomed to yield, over and above its share of central capital charges, a surplus of £2,500,000. Its greater severity in dealing with London Transport as opposed to British Railways presumably indicates that its finances are in a somewhat more healthy state. With regard to season tickets the Tribunal has asked the Commission to supply a scale so that the difference between those now in force and those proposed was reduced by about half. It also wants an estimate of the expected additional revenue from this new scale.

If the Commission can satisfy the Tribunal in the amendments which it will presumably propose it will get some of the flexibility in the fixing of standard fares which it has been demanding. This, however, may prove a slow process. One of the main sources of lost revenue in the past has been the delay in sanctioning increases of charges. The greater the delays in getting justifiable applications for higher fares and charges approved, the larger the Commission's deficit becomes. This in turn determines the size of increase it is bound to seek.

Although the Commission will have power to raise rail fares by 50 per cent, it was stressed at the public inquiry towards the end of last year that it was not intended to make a general increase of this magnitude. Supplements were envisaged on some named express trains as well as higher fares on some branch lines faced with closure. Since then the financial position of the railways has undoubtedly worsened and it seems likely that some general increase will be necessary when power is received.

The Commission's stated object in asking for a 50 per cent rise in the maximum was to give it headroom to charge higher fares without having to go to the Tribunal every time an increase was justified.

B.T.C. Financing

THE accounts of advances to the nationalised industries for the financial year ended March 31, 1958, published as a White Paper rather belatedly last week, show not only the growing indebtedness of the British Transport Commission but also the complex manner of its financing. The Chancellor of the Exchequer with one hand advances to the Minister of Transport sufficient funds to meet the Commission's deficits who passes them on to the Commission. With his other hand the Chancellor takes from the Minister who has obtained the money from the Commission interest on the money advanced for deficit financing the previous year, but then he puts his hand in his pocket again to lend through the Minister sufficient to meet the interest he has extracted from the Commission.

The actual figures may help to clarify this confused procedure. During the year, £66.3 million was advanced to the Commission, of which £2.4 was the balance to meet the £54.4 million deficit for 1957 of which £52 million had been advanced the previous year, £62.5 million was advanced on account of the 1958 deficit, and to meet the interest on the previous year's borrowing of £52 million, a further £1.4 million was borrowed from the Treasury and handed back to it. Since interest must be paid on all borrowings, whether to meet interest on the deficits or the deficits themselves, over the years the indebtedness will grow at compound interest and the Commission become burdened with growing liabilities from which it has reaped no reward. Interest rates charged by the Treasury on this deficit financing have been high, varying from 5 per cent to 5½ per cent, with the bulk at the higher rate, as the loans were made during the period of high interest rates; but whereas on current borrowings the charges should be less there is no provision for a reduction in interest charges as long as the loans are outstanding.

From the accounts it can be calculated that by March 31, 1958, borrowings under the Transport (Railway Finances) Act, 1957, on account of 1957 and 1958 totalled about £120

million. As the 1958 deficit is estimated at from £85 to £90 million and there will be interest on previous borrowings to be added it is no wonder that it was necessary to raise earlier this year the permitted borrowings for deficit financing from £250 to £400 million; the lower figure would have been almost exhausted when the 1958 deficit has been financed. It already seems certain that the £400 million cannot last until 1962 as was intended when the limit was extended. The Chancellor provided in his Budget £88 million "below the line" to meet the Commission's deficit for 1959, only £6 million less than last year so this is presumably the Commission's target. From this year's disastrous freight traffic so far published little encouragement can be obtained that the deficit will be lower or even as low. If the total amount is drawn on, there is likely to be less than £100 million left for the three years 1960 to 1962, and it would be quite unrealistic to expect British Railways so to improve their position that this balance will prove adequate.

The White Paper also gives the sums borrowed for capital purposes during the year. The Commission was advanced by the Treasury through the Minister a total of £68 millions. Interest rates were fixed at from 5½ per cent to 6 per cent with the higher charge being made on £50 million of the advance. Repayment is over 25 years by 25 equal annual instalments, so at the same time as the Commission is borrowing further sums for modernisation it is repaying them. By March 31, 1958, total borrowings for capital purposes totalled £441 million out of the limit authorised of £600 million. The limit was raised to £1,200 million earlier this year.

Reconstruction at Temple Mills

WHEN in 1954 it was decided to reconstruct and modernise Temple Mills Marshalling Yard, British Railways, Eastern Region, as a main distribution yard and two reservoir yards, there were no less than 10 yards at Temple Mills itself, and some five satellite yards in the outer London area. Major reconstruction had become essential because the old layout inevitably caused a great deal of trip working between yards. The scheme was authorised by the British Transport Commission in February, 1954, at a cost estimated at some £2,500,000. Temple Mills was the first yard in Europe designed to incorporate two stages of retardation. Thornton Yard in the Scottish Region was also designed with this facility and, because of the shorter construction time, was the first to come into use with primary and secondary retarders.

The new layout was constructed in the midst of the old marshalling yard, which continued to handle traffic throughout the whole course of the reconstruction. Every stage had to be scheduled in close collaboration between railway engineers, contractors and yard staff. At times the layout was changed from week to week, and even from day to day. For almost a year train movements in the yard area took place under hand signalling arrangements. It is much to the credit of railway staff and contractors that the planning resulted in complete safety being maintained, and the fact that at no time was the yard prevented from dealing with less than 80 per cent. of its normal traffic.

The reconstructed layout consists of one main yard and two subsidiary ones. The passenger lines have been diverted round the yard perimeter, and the old wagon repair shop has been demolished and a new one constructed nearby. A new road motor vehicle repair shop has been built on the south side of the Ruckholt Road Bridge.

Besides repositioning the sidings and building a new hump, as described elsewhere in this issue, a control tower, power house, hump cabin, two signalboxes, and various other buildings have been built.

The control desk in the hump cabin carries a diagrammatical representation of the track layout. The operator sets the routes as the "cuts" of wagons approach the cabin, depressing the appropriate points selector button according to the letter and number marked on each wagon. The hump signals and points are controlled from the cabin by thumb switches on the cabin panel. A teleprinter transmitter is incorporated within the desk structure and the information which this relays to the control tower is initiated from direct connections to the route setting and "cut" push buttons. No separate teleprinter keyboard is necessary.

The depression of one of the route setting buttons and "cut" description button on the hump cabin control desk initiates the appropriate code which is transmitted to a receiving unit in the control tower. A record of this transmission of the code is printed on a paper tape with the route number of the "cut" on the left, and the number of wagons on the right. A push button is provided to inform the control tower when the end of the train has passed over the hump.

The application of automatic and radio frequency equipment to marshalling procedure makes possible a great reduction in the number of shunting operations for each wagon and cuts down the hours which freight must spend in the marshalling process. The new yard with its well designed layout, colour-light signalling, and improved wagon repair facilities should make possible reductions in operating and motive power cost, and contribute substantially to the improvement of freight handling in the Eastern Region.

Scottish Region Summer Timetables

AS a result of reduction in running times south of the Border, certain West Coast expresses will be slightly accelerated, though not restored to the times of a year ago. The 8.30 a.m. "Caledonian" and 1.30 p.m. "Midday Scot" from Glasgow will reach Euston 5 min. earlier, at 3.20 and 9.10 p.m. respectively, the 9 a.m. from Perth at 7.28 p.m., 7 min. earlier, and the 10 a.m. "Royal Scot" at 5.20 p.m., 10 min. earlier. In the reverse direction the 9.50 a.m. down "Royal Scot," as usual in summer omitting its Rugby and Crewe stops, will be into Glasgow 30 min. earlier, at 5.15 p.m., and the 1.20 p.m. "Midday Scot" at 9.10 p.m., 14 min. earlier, though in both cases 10 min. later than last summer. The 4.5 p.m. down "Caledonian" will arrive in Glasgow at 10.55 p.m., 5 min. earlier, and the 1.25 p.m. from Euston in Perth at 12.23 a.m., 7 min. earlier.

On the other hand, the day expresses between St. Pancras and both Glasgow and Edinburgh will be decelerated south of Carlisle; the 10.15 a.m. "Thames-Forth Express" will be 10 min. later from Carlisle and will reach Glasgow St. Enoch at 7.55 p.m., 12 min. later; and the 9.20 a.m. from St. Enoch to London will be into St. Pancras at 6.25 p.m., 5 min. later. From Glasgow the 9 a.m. relief to the latter will run on Mondays, Fridays and Saturdays instead of on Saturdays only, as in previous years. Also the 10.5 a.m. "Waverley" from Edinburgh will not be due in St. Pancras until 8 p.m., instead of 7.50 p.m.

Among other alterations the 1.45 p.m. from Glasgow Central to Liverpool and Manchester, and the 2 p.m. from Manchester Victoria and 2.15 p.m. from Liverpool Exchange to Glasgow and Edinburgh will run on Fridays and Saturdays only, instead of daily as last summer. A further addition to the "car sleeper" services will be a train on Sundays and Wednesdays only from Sutton Coldfield (serving all the Birmingham area) at 9.35 p.m., and reaching Stirling at 6.45 a.m., with a return from Stirling on Mondays and Thursdays at 8.35 p.m., to reach Sutton Coldfield at 5.30 a.m., where passengers will have the usual option of remaining in the sleeping cars till 7.30. Northward from Glasgow Buchanan Street last summer's 7 a.m. express to Aberdeen will start at 7.25 a.m., due at 11.4 a.m. The 3.30 p.m. "Postal" from Aberdeen to Glasgow will be relieved on Saturdays by a 3.55 p.m. (last summer 3 p.m.) reaching Buchanan Street at 7.20 p.m., 9 min. after the former.

A further route is to be added this summer to those provided with observation cars, and the one which probably provides a greater scenic variety than any other in Scotland. This is the West Highland line. The 10.20 a.m. buffet car train from Glasgow Queen Street will be provided with an observation car to Fort William, arriving at 2.52 p.m., and returning with the 4.40 p.m., reaching Glasgow at 9.13 p.m. The charge will be 3s. 6d. per seat. Observation cars will also be run, as in previous summers, on the 7.55 a.m. from Glasgow Buchanan Street to Oban, returning at 5.15 p.m., also now with a buffet car in both directions, and on the 9.50 a.m. from Fort William to Mallaig, returning at 6.10 p.m. The restaurant car run normally on the 5.15 p.m. from Oban will be transferred to the 6 p.m. London sleeping car train.

On the East Coast the 1 p.m. "Heart of Midlothian" from King's Cross will retain its winter stops between Newcastle and Edinburgh, and so reach Waverley at 8.46 p.m., as compared with 8.28 p.m. last summer. North of Aberdeen the 7.48 and 8.5 a.m. trains of last year to Elgin and Inverness

will run as one train at 7.48 a.m. as far as Keith Junction, from which point the buffet car section will take the direct line to Inverness via Orton, arriving at 11.8 a.m. as now; the sections for Elgin via Craigellachie and Inverness via the Coast line will divide at Keith Town as in winter. The 10.12 a.m. summer train from Edinburgh to Inverness via Forres will be accelerated to reach Inverness at 4.57 instead of 5.10 p.m., so connecting with the 5.40 p.m. (formerly 5.10) from Inverness to Kyle of Lochalsh

Coal Movements and Fuel Costs in U.S.A.

THE serious fall in British Railways receipts from coal class traffic, amounting to some £2,400,000 in the first 12 weeks of 1959 compared with the corresponding period of 1958, lends interest to the figures made public by the Interstate Commerce Commission, of coal traffics in the U.S.A. and the movement of the competitive fuel, namely, oil by pipelines. The statistics for the U.S.A. show that whereas, in 1939, 83.9 per cent of the total coal production of almost 395 million tons, was despatched from the mines by rail, the percentage had dropped to 77.4 by 1957, when the production totalled the larger figure of nearly 493 million tons. In 1957, 10.2 per cent of the output was despatched by water and a similar percentage reached its destination wholly by road. Movement of coal through the 108-mile pipeline in Ohio as yet affects only a fraction of 1 per cent of coal production, though the situation may be very different in the not too distant future.

As there was a considerable economic recession in the U.S.A. in 1958, it is not surprising that even the oil pipelines handled less oil and received less revenue than in some earlier years. The 69 large oil pipelines making returns to the Interstate Commerce Commission that year handled some 4,256 million barrels (of 42 gal.), earning almost \$666 million. These figures respectively represent increases of 121.9 and 83.7 per cent over the comparable figures for 1947, but considerable reductions compared with the results for 1956 and 1957.

As to the cost of the fuels used for railway traction, coal per net ton in 1958 cost \$6.47, an increase on 1957 of nearly 3 per cent. Fuel oil per barrel is reported as costing \$1.62, a decrease of 44 per cent. Diesel fuel per gal. cost 9.68 cents, a drop of over 8 per cent on 1957. The price of electric current per kW.-hr. rose by nearly 7 per cent to 1.256 cents. In 1958, nearly 97 per cent of the total American freight train service, measured in trailing gross ton-miles, was handled by diesel-electric locomotives. Electric locomotives only handled 1.66 per cent and steam less than 1.5 per cent of the total. The use of oil-burning steam locomotives, once an extensive American practice, particularly on the Santa Fe and other railways serving the south-western States, has almost disappeared, for only 0.7 per cent of the total trailing gross ton-miles were so hauled in 1958.

These figures show that the revolution in traction on the railways of the U.S.A., which has taken place during the last quarter-of-a-century, is almost complete. There is no American railway of any importance which has not turned over to diesel power. The Norfolk & Western was the last major company to abandon steam, doubtless because of its main function as a coal line.

Signal Engineers Visit Italy

FOR the first time the Institution of Railway Signal Engineers is holding its summer convention, this Whitsun, in Italy, under the leadership of the President, Mr. D. G. Shipp, by the courtesy of the management of the Italian State Railways. Several power signalling installations are to be inspected, including one operated hydraulically, something which probably only a few members will have seen before.

The first interlocking installation in Italy was opened at Genoa in 1874, with apparatus sent by Saxby from London, and his designs were followed for some time, combined in some places with the block apparatus devised by his associate Hodgson. Hydraulic working of points and signals was introduced in 1886 on suggestions made by Riccardo Bianchi, who became General Manager when in 1905 the principal railways were nationalised, to an engineer named Servetaz, the representative of an English firm of crane manufacturers and an industrialist. It received very wide application in Italy. Nearly 15,000 levers were installed, and, gradually

improved in certain details, gave excellent service. This success, however, tended to divert attention for a time from other systems. Eventually, in 1924, some all-electric signal-boxes were opened. After trials with various makes of equipment a standard electric system was evolved, using individual levers and mechanical interlocking. Of this also many thousands of levers were constructed and the system is still being installed. For the larger stations, however, relay interlocking, operated from push-button desks, is now regarded as standard and is to be seen at Bologna, Naples, Genoa, and elsewhere. The circuits used were arrived at after consideration of the various known route-setting methods and single push-button actuation selected as being best adapted to the prevailing conditions.

With this development went the application of remote control to the operation of junctions at the approaches to large centres, of which the installation at Bologna, to be inspected by the visitors, forms a particularly remarkable example. Automatic signalling, in some cases using coded circuits, has been applied over an appreciable length of route, especially where fast trains run, and is being continually extended. Revised colour-light signal aspects were introduced a few years ago to give increased facilities and include flashing lights for the preliminary warnings. Some hydraulic signalboxes have been modernised by changing the signals to colour-lights and adding constant electrical detection and track circuit controls, while leaving the points to function as before, thus providing simplified equipment and an improved standard of safety at moderate cost. Much attention has been devoted of late years to improving the design of components for signals, relays, point machines, and so on. The last-named have been adapted to operate the newer, heavyweight high-speed turnouts, increasingly encountered. A certain measure of standardisation also has been achieved and this policy is being continued. As in all countries the level crossing problem is demanding increasing attention. Automatic barriers, or in some places half-barriers, with flashing lights and various arrangements of track circuit or treadle control, are being introduced. No one system of A.T.C. has as yet been generalised but experiments with various designs have been carried out and others are in progress.

The Italian railways can regard with pride the part played by them in the development of signalling, and members of the Institution of Railway Signal Engineers cannot fail to find much to admire and interest them on their visit to that system.

Twelve Weeks of Railway Operations

(By a correspondent)

IN four weeks to March 22, British Railways originated 19,188,000 tons of freight train traffic and had a resultant revenue of £21,044,000. Tonnage was less by 1,768,000, or 8 per cent, than in 1958 and receipts were lower by £2,129,000, or 9 per cent. Over the first 12 weeks of this year 5,112,000 tons, or 8 per cent of last year's carryings were lost, with a drop in revenue of £6,569,000, or 9 per cent. Unhappily in the next four weeks to April 19 there was a further fall in freight train receipts of £3,138,000, or 14 per cent, making the loss in revenue for 16 weeks £9,707,000, or over 10 per cent.

Evidently the volume of all classes of traffic contracted sharply in the April period. It is specially significant that coal and coke receipts were £1,748,000 less than a year ago, a decrease of 17.5 per cent. Before the second world war the coal mining industry was one of the main props of the railways, but in the first 16 weeks of this year the National Coal Board produced 2,432,000 tons or 3 per cent less than in 1958, and during 15 weeks exported 183,000 fewer tons, a decrease of 16 per cent. The result is that the railways carry on an average 220,000 fewer tons a week than they moved last year, when forwardings were 7 or 8 per cent below the 1957 level.

TWELVE WEEKS' OPERATING STATISTICS

In 12 weeks to March 22 the railways worked 4,402 million net ton miles, 313 million (6 per cent) fewer than a year ago. The loss in movement varied from 3.5 per cent in the Eastern Region to 11 per cent in the North Eastern. A rise of 9,673,000 mineral ton miles in the Eastern contrasted with a fall of 19,979,000 in the North Eastern.

Freight train miles were reduced by 1,691,000 (5.5 per cent) and freight train hours in traffic by 233,000 (6.7 per cent).

Shunting engine hours were cut by 8.7 per cent, the saving being due partly to a decrease of 572,000 (8.3 per cent) in the number of wagon loadings. The average freight train of 28 wagons carried a net load of 150 tons, about 2 tons less than a year ago. Having regard to the low density of traffic, a steam freight train speed of 9.1 miles an hour was slow, being no higher than the speed recorded by the former railway companies in the six difficult years before the 1939 war. The Eastern Region worked over 60 per cent of all diesel freight train miles at a speed of 9.7 miles an hour, but the general average of 7.3 was feeble. Electric freight train miles numbering 400,000 were worked at the rate of 9.5 an hour, a little faster than last year though not quite so fast as in 1957.

Despite the shrinking traffic volume, the railways worked five more ton miles in a train hour than they produced last year, although their output of 1,121 was 62 points behind 1957. As usual the Eastern Region had the highest output of 1,269 ton miles, nine above 1958 but at least 110 below its 1957 record production. The North Eastern advanced its figure by 24 points to 1,190 and the Western by 41 points to 1,067, while the London Midland output dropped by 31 points to 1,141. Wagon mile statistics tell a similar story, the railways working 211 wagon miles in a train hour, three more than last year. The Eastern Region had the best statistic of 220, the London Midland figure dropping by four points to 217, while the North Eastern raised its average by eight points to the same level. The lamentable change in movement is clear from the corresponding figures to March 24, 1957—an all-time average of 224 wagons in a train hour, 258 for the Eastern Region, 223 for the London Midland, and 229 for the North Eastern.

ROLLING STOCK

At March 22, the railways owned 15,790 steam locomotives and had 2,578, or 16.3 per cent under repair. In 12 weeks to that date 29 more diesel, mechanical and hydraulic locomotives went into service, making the total stock 271; at March 22, no fewer than 37, or over 13 per cent of the stock, were unserviceable. The diesel electric fleet was likewise increased by 64 units to 1,022, of which 123, or 12 per cent were out of action. Ten electric locomotives out of 74 were under repair, a ratio of 13.5 per cent.

The stock of freight vehicles at March 22 numbered 1,009,054, with 52,105, or 5.1 per cent, under repair. A year ago the repair ratio was 5.5 per cent, but 16,430 wagons were withdrawn this year against 12,900 in the first 12 weeks of 1958. The number of wagons available for traffic in March was 84,520 below last year's count. We are left in the dark about the adequacy of the depleted stock to meet traders requirements. They order this matter better in the U.S.A., where a monthly bulletin surveys the transport field and gives the average daily shortage and surplus of all types of wagon in general use.

PASSENGER TRAFFIC

In the months of January and February our railways carried 160,819,000 passengers, 1,022,000 fewer than last year. The Southern Region originated 42 per cent of these journeys and carried 483,000 more people. The Eastern Region dealt with 474,000 more passengers, an increase of 1.8 per cent, but travel declined in the rest of the country. The Western Region had a decrease of 698,000 journeys, or 4.3 per cent, the North Eastern a decrease of 189,000 journeys, or 2.3 per cent, and 567,000 fewer people travelled in the Scottish Region, a loss of 5.6 per cent.

For the two months passenger takings amounted to £17,777,000, a rise of £183,000, or 1 per cent over 12 weeks to March 22, receipts increased at the same rate, though coaching train miles were reduced by 643,000, or 1.2 per cent. Steam train miles were cut by 5,316,000 (14 per cent) and electric train miles by 256,000 (2 per cent), while 4,929,000 additional diesel train miles were run, bringing total diesel mileage to 10,251,000. During these weeks 205 more diesel multiple unit carriages were put into traffic, making a total stock of 2,622. On March 22, the number under repair was 219, or 8.3 per cent of the stock. That is a high repair ratio for a fleet of new vehicles. Only 7.3 per cent of the older and hard worked stock of 5,182 electric multiple-unit vehicles were unserviceable. This calculation excludes 216 vehicles constructed in advance for electrification schemes and held in store at some cost for maintenance, if all risk of deterioration is to be avoided.

This survey of freight and passenger business shows that the railway position has not been strengthened in the first quarter of the year. There are no signs of a gradual improvement in

freight traffic, as there are in the United States. On British Railways passenger services hold their own better, though it is doubtful whether there is an adequate return on the expenditure incurred in maintaining them. Nearly all American railroads operate passenger trains at a loss and, as a rule, the more trains a railroad runs the larger the passenger deficit grows.

TWELVE WEEKS OF RAILWAY OPERATIVES STATISTICS FOR 12 WEEKS TO MARCH 22

	L.M.R.	Eastern R.
Percentage decrease in tons	6.3	2.4
Percentage decrease in ton-miles	7.1	3.5
Train load (tons)	163	172
Steam freight train speed (m.p.h.)	8.54	8.80
Diesel freight train speed (m.p.h.)	5.38	9.71
*Electric freight train speed (m.p.h.)	9.75	8.99
Ton miles per train hour	1,141	1,269
Ton miles per total engine hour	663	749
Wagon miles per train hour	217	220

* The Eastern Region hauls the heavy trains uphill to Dunford on the Sheffield-Manchester line; the L.M.R. takes them down hill and its average speed should be well above 10 m.p.h.

Letters to the Editor

(The Editor is not responsible for opinions of Correspondents)

Design of Passenger Coach Bogies

May 1

SIR,—Nearly 60 years ago a draughtsman designed what he thought should be a really good riding carriage bogie. Apart from his basic knowledge of mechanics and the value of helical springs, plus his own practical experience, he had none of the fancy electronic computers and suchlike gadgets of today. Thanks to that work we have the pleasure today of riding sometimes on the "Doncaster Bogie," a double-bolster type. Fifty-odd years later we have to put up with being tossed and buffeted about when riding on cars fitted with the British standard bogie.

Reading the editorial article in your April 17 issue, I find that Mr. R. M. Hancock is now blaming the track for bad riding of bogies. When I was working professionally in the railway industry, I often asked the reason for the 1 in 20 coning and tilt of the rails. There was never a straight answer—only mumblings about the "sunusoidal" effects. To my mind this 1 in 20 coning helps hunting, particularly on electric motor-driven bogies where the slightly uneven pull of one motor against the other, must add to it.

In the U.S.A. vast amounts of money have been spent on all kinds of dampers and snubbing devices, and yet they still keep the coning and the equalising beam bogie with all its mass of unsprung weight to thump about all over the track. As to damping devices, it seems senseless to trouble to design a bogie with all sorts of springs to absorb shocks, and then go to greater expense to restrict, snub, or damp them. Will not the general practice of large masses of freely swinging brakegear on bogies which "bash" the blocks (almost senseless) against the rims of wheels, which I have seen with my own eyes (through the drain holes in the toilets) cause hunting? In such circumstances hydraulic dampers are an expensive addition, which may not cure hunting.

Mr. Hancock may blame the track, but what co-operation is there between Permanent Way and Carriage & Wagon Departments? The only major change which has taken place in the design of track is the replacement of bull-head by flat-bottom rails.

On one occasion I travelled on a train of 10 vehicles, nine of which were brand-new British Railways standard coaches. The odd one was an Eastern Region coach with the "1900" Doncaster bogies. At 70 m.p.h., this old vehicle was the only one whose bogies were not hunting furiously.

The old L.M.S.R. and Southern single-bolster bogies do ride quite well at speed, but some hunt, whereas others do not; but this is probably due to wear only.

We have read a lot of articles recently on springing using all sorts of fancy formulae, all of which seem to presuppose ideal conditions only. My own view is that, with the removal of sloppy brakegear, the Doncaster bogies would have been as near perfect as is possible and that it should have been the British Railways standard from the beginning of, say, 1948.

Yours faithfully,

H. E. NORMAN, A.M.I.E.D.

4, Silver Street, Dursley, Glos.

THE SCRAP HEAP

Life Underground

The child going up a "percolator" in an Underground station reminds me of the first time my son, then three years old, travelled by tube. I carefully explained that it would be dark as we were going under ground, but he insisted on kneeling up to stare out of the windows. When I asked him what he hoped to see, he promptly answered: "Worms!"—From a letter to "Woman."

The London Traffic Problem, 1899

The time is rapidly approaching when the problem of London street traffic will have to be taken seriously and scientifically in hand. The present condition of things is fast becoming intolerable, and the perfunctory attempts that are occasionally made to improve things only serve to illustrate the magnitude of the evils and the difficulty of coping with it by isolated action. The whole subject of London street traffic, involving also that of London street repairs and excavations, requires the serious attention of the Legislature, and should be investigated by a Parliament Committee. Members of Parliament who desire to distinguish themselves, and at the same time to benefit a large section of the community, might here find their golden opportunity.—From "The Financial Times" of April 24, 1899.

Railway Letter Service

The Stockton & District Philatelic Society on May 2 commemorated what was believed to be 125 years of the railway letter service by despatching 500 commemorative letters to stamp collectors all over the world. These letters bear on the front of the envelope the coat of arms of the Borough of Stockton-on-Tees and on the back a specially produced commemorative railway stamp. The back of the envelope was given the impression of the date stamps of both Stockton and Darlington Stations, as shown in the accompanying illustration.

Research had failed to establish the date when mail was first carried on the Stockton & Darlington Railway, but it was thought that mail was first conveyed between these points in 1834.

Rail-borne mail was carried by the Liverpool & Manchester Railway between Liverpool and Manchester on November 11, 1830, and on May 9, 1831, a contract with the Postmaster General was ordered to be sealed.

First "Piggy-Back" Service?

"On the 17 January, 1865, he [Edward Banfield] married . . . and soon after proceeded to South America, to undertake the management of the Buenos Ayres Great Southern railway, then newly opened. As manager of this line he became known and appreciated all over the province, and the success of the railway was on several occasions stated by the London directors to be entirely owing to his exertions. Among other improvements he introduced a system of carrying wool—a staple product of the country, and the source of large revenue to the railway—in the country bullock carts without unloading, by means of low trucks. This avoided the necessity of using bags, and greatly facilitated the conduct of the traffic."

—From a memoir of Edward Banfield (1837-72) in the "Minutes of Proceedings of the Institution of Civil Engineers, Session 1872-73."

Informative C.P.R. Timetable

The yellow-bordered 64-page booklet "Folder A," which makes its customary Spring appearance in stations and travel offices all over Canada, and in many other parts of the world, is the Canadian Pacific Railways universal travelling companion. "Folder A" first appeared about 1889, three years after the first trans-continental train left Montreal for Port Moody. The earliest issue on record, of 10 pages, listed not only train times, but also local stage coach and steamer connections and steamship sailings to

Japan and China. An introductory section stated that dining car meals could be had for 75 cents (3s.) and that the oil used for lighting was "even safer than candles and affords a most brilliant light."

Much useful information is given in the current issue. For passengers through the Rockies by a scenic "dome" train, the "Canadian" or the "Dominion."

The height of each station is listed. Particulars are given of spiral tunnels, rock ballast, scenery, places to stay, sports facilities, Canadian Pacific airline and steamship connections, and nursery facilities at Windsor Station, Montreal. The folder lists some 2,600 C.P.R. stations, from Abbey, Sask., to Zorra, Ont., including Baghdad, N.B., Three Tree Creek, N.B. and Skookumchuck, B.C.

Dual-gauge Carriages in 1899

A feature of the past eight years has been the introduction in Europe and the Far East of through sleeping cars between the U.S.S.R. and neighbouring countries, with a change of bogies at the break-of-gauge points at the Russian frontier. A recently published work, "Lokomotiven und Wagen der Deutschen Eisenbahn (German Railway Locomotives and Rolling Stock)" by Erhard Born, recalls that the then independent Marienburg-Mlawker Railway in East Prussia introduced in 1899 convertible six-wheel tri-composite coaches for the through service from Danzig to Warsaw, in which the axles were changed at the break-of-gauge station of Mława. The coaches had seven compartments, one first class, two second, and four third, with seating respectively for 4, 16 and 29 passengers. The broad-gauge portion of the route, then in the Russian Empire, was later converted to the standard European gauge.

Saltash Bridge

(See our May 8 issue)

Since this great bridge was built, that all might ride
To realms delectable o'er Tamar's tide,
A hundred years have passed, to prove it true
That sometimes man built better than he knew
And his creations, still defying time,
Hint at a rendezvous with the sublime.

We celebrate the deed; what of the man
Whose forward-reaching mind conceived the plan
And consummated it, whose seal and sign
Graced, everything along the "Broad Gauge Line,"
Who linked with courage and sagacity
Unflinching faith in man's capacity?

Now, as its airy heights to heaven it rears,
The bridge becomes, with all its tale of years,
Another monument to old Brunel,
Who built most things and mostly built them well.

A. B.



Commemorative railway stamp, and Stockton and Darlington Stations parcels office stamps on letters despatched on May 2

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

"Explorer" on Trial

The superstructure of the first diesel-electric locomotive to arrive in East Africa was unloaded from the s.s. *Wayfarer* at Mombasa at the end of April. The bogies to complete the locomotive will arrive during May and it is expected to be assembled by June.

The locomotive, called the "Explorer" by the builders, British Thomson-Houston Co. Ltd., is a 1,100-h.p. mixed traffic type. It was sent to East Africa at the request of the builders for testing by East African Railways & Harbours, but almost all the expense will be borne by British Thomson-Houston. After the extensive tests the locomotive will be put on show, probably in Nairobi, and it is intended to invite engineers from all over the world to view it. The "Explorer" will be operated in the port area of Mombasa then from Mombasa to Voi and later up-country. It has been designed for use on the lighter type of railway in countries outside of Britain. There is no intention on the part of E.A.R. & H. as yet to buy the "Explorer" or any other locomotive from B.T.H.

SOUTH AFRICA

New Buses for Tourist Routes

Ten luxury buses have been ordered by S.A.R. for passenger road services on the tourist routes between Capetown and Durban, Durban and Johannesburg, Johannesburg and Beit Bridge, and Capetown and Karasburg. They will be placed in service towards the end of the year.

Features include accommodation for 32 passengers; double reclining seats;

ample room for parcels and light luggage; air-conditioning, and toilet compartment.

The Canadian Car & Foundry Brill buses which have been in service since 1947 are now gradually being replaced. The new buses will be powered by B.81 Mark IV, eight-cylinder Rolls-Royce engines of 237 h.p. and a four-speed Meadows 350 type synchronised gearbox. The chassis, 35 ft. long, are being built by Guy Motors (S.A.) Limited. The bodies are being built by J. H. Brockhouse (S.A.) Limited.

The C.C.F. Brill buses at present used on the long-distance service of 364 miles between Windhoek and Grootfontein-Tsumeb are being replaced by buses on Henschel chassis with 6R1215 200-h.p. diesel engines. The bodies are being built by Bus Bodies (S.A.) Limited, Port Elizabeth. Ten Daimler "Freeline" and 10 Leyland "Olympic" single-deck buses are being purchased for services in the Witwatersrand area.

VICTORIA

Container Wagons

A new type of auto-coupled "Rail-Pak" wagon will shortly make its first appearance on the Victorian Railways. Ten of these special wagons for the transport of freight containers of varying lengths will be constructed at Bendigo North Workshops. In the manufacture of the "Rail-Pak" wagons, underframes and bogies of "E" wagons, general purpose 44-ton freight wagons, will be used. Sides and ends are removed and the underframes extended by 2 ft. 6 in. The completed wagon is 45 ft. long, 8 ft. 11 in. wide, and floor height from rail is 3 ft. 11 in. The wagons will accom-

modate six 7 ft., three 14 ft. or two 21 ft. long containers.

Finances during 1957-58

Continued losses are reported by the Victorian Commissioners of Railways during the year ended June 30, 1958; they are stated to be due mainly to the fact that the general public did not use its railway system to capacity. The net deficit was over £A.5,880,000 during that year, and total revenue fell by some £A.1,430,000 as compared with 1956/57.

Of the £A.7,000,000 capital expenditure, over £A.2,200,000 were spent on additions and improvements to way and works, some £A.4,400,000 on rehabilitation works and nearly £500,000 had been devoted to gauge standardisation by the end of the year.

QUEENSLAND

Rolling Stock Improvement Plan

The Queensland Cabinet has approved in principle a £A.10,000,000 five-year plan for the improvement of the railway rolling stock. The principal purchases are to include diesel locomotives, suburban coaching and also foods stock as well as some railcars. Preference in acceptance of tenders is wherever possible to be in favour of Queensland manufacturers.

CEYLON

Periodical Season Tickets

For the convenience of season-ticket holders, a change was made from April 1 in the issue of monthly and quarterly season tickets. Hitherto these season tickets were dispatched to stations from the Chief Accountant's Office on written applications made in advance by indi-

Completion of Ganges Bridge at Mokameh

(See our May 8 issue)



Fifth span from south being erected. The upper deck at mid-girder height has reached the fourth span



After completion of the girder and decking erection, showing upper deck for roadway

vidual travellers. Season tickets between all stations can now be obtained on the spot, in the same way as ordinary travel tickets, on verbal application across ticket counters. These tickets can also be renewed now two days before the date of expiry, on surrender of old tickets.

ALGERIA

Forbidden Zones Along Railway

Because of frequent attempts to blow up the railway in the Perregaux region in Western Algeria, forbidden zones along the lines, 164 ft. wide on either side, were introduced recently. The only exceptions are roads leading to level crossings. Bridges, viaducts and other structures are protected by barbed wire. Anybody approaching the lines inside the forbidden zones by night is liable to be shot at without warning.

CANADA

Transcontinental Schedules

Faster transcontinental schedules to reduce travel time for both long distance and inter-city passengers have been introduced by Canadian National Railways. The cuts range from a few minutes to half an hour. Both the "Super Continental" and "Continental" will save 30 min. from Montreal to Van-

couver making the "Super Continental" the fastest Canadian transcontinental westbound train by 1 hr. The "Continental" will pick up the 30 min. between Montreal and Winnipeg while the schedule of the "Super Continental" has been reduced between Winnipeg and Vancouver. The "Super Continental" eastbound to Ottawa and Montreal from Vancouver will also save half an hour.

SPAIN

La Engana Tunnel Completed

The 4½-mile La Engana Tunnel, the longest on the Spanish Nation Railways, has been completed. It is on the line, now nearing completion, which will link the Atlantic and the Mediterranean across north-central Spain.

WESTERN GERMANY

General Data

At the end of 1958 the Deutsche Bundesbahn had 30,980 route km. (19,250 miles) in operation, of which 280 km. (174 miles) were open for passenger traffic only, 2,120 km. (1,316 miles) for freight traffic only, and the remainder for freight and passenger traffic. Over the year, 73 per cent of

all traffic in ton-miles was handled by steam. Electrified mileage at the end of the year was 3,209 route km. (2,000 miles), but the planned total by the end of 1959 is 3,453 route km. (2,142 miles). Total passenger-train distance in a year amounts to about 365,000,000 km. (226,000,000 miles) and freight train distance to about 205,000,000 km. (127,500,000 miles).

HUNGARY

Lightweight Dining Car

The Hungarian Railway Carriage & Machine Works at Győr exhibited at the Leipzig Spring Fair a 48-seat lightweight dining car for the Hungarian Railways, distinguished by the widespread use of aluminium. Aluminium has been used throughout for the trailers of the "Balaton" type three-car diesel trains, to appear later this year; by this means the weight of each trailer has been kept down to 36 tons, for a seating capacity of 80 passengers. The motor coach of the train will be powered by a 12-cylinder Jendrassik diesel engine, also manufactured at Győr and exhibited at Leipzig. The Győr works recently concluded arrangements with J. Stone & Co. (Deptford) Ltd., for the manufacture under licence of air-conditioning equipment for railway rolling stock.

Publications Received

Tunnel Engineering. By Rolt Hammond. London: Heywood & Co. Ltd., Carlton House, Great Queen Street, W.C.2. 8½ × 5½ in. 332 pp. Illustrated. Price 55s.—The author is bold to undertake a complete review of tunnelling practice, which embodies all its details, both historical and up-to-date, in this moderate size volume. The work satisfies a long-felt need, and by its grasp of modern techniques in all aspects of tunnelling provides a valuable compact list of references on the subject. The major problems are discussed in considerable detail. Ancillary ones such as the health of the staff at the heading-face, grouting, and survey methods are also dealt with comprehensively. Throughout there is a valuable blend of modern scientific outlook with eminently practical experience. Even such matters as seismic survey and resistivity and rock-velocity measurement are considered, and a great many tunnel projects are fully described; lessons learnt from those that initially did not prove successful for one reason or another are not overlooked. The volume is illustrated with excellent diagrams and photographs and is very well produced. Every engineer likely to be concerned with tunnel work or interested in it should possess a copy.

Power-Operated Ventilators.—A seven-page leaflet issued by Rail Traction Supplies Limited, describes the Vent-Axia railway ventilating unit which gives powered and positive ventilation and is claimed to provide many of the advantages formerly associated only with air

conditioning, at a fraction of the cost and without a great increase in weight. A cross-sectional drawing shows the construction of the ball-bearing-mounted roof cowl through which stale air is discharged. The cowl adjusts itself automatically for the direction of running or the direction of the wind when standing. Other illustrations show Vent-Axia equipment fitted on rolling stock of the Pullman Car Co. Ltd., Queensland Government Railways, and Rhodesia Railways. Further applications suggested are for kitchen cars, underground railway rolling stock and for cab ventilation on diesel and electric locomotives, especially where there are combinations of high ambient temperatures and low train speeds. Copies are available from Rail Traction Supplies Limited, Locomotive House, Buckingham Gate, London, S.W.1.

Permanently Locked Inserts and Studs.—A 13-page publication issued by the Instrument Screw Co. Ltd., Northolt Road, South Harrow, Middlesex, gives complete information on Rosan permanently locked inserts and studs. Clear illustrations show how the inner serrations of the Rosan lock ring engage with a serrated collar on the stud or insert which is conventional in other respects. Installation data includes dimensions for the necessary countersunk recess at the top of the tapped hole in the parent metal, details of wrenches, ring drive tools, and counterbore tools available, and full installation and removal instructions. Dimensions are given in tabular form for all combinations of fine and coarse threads for

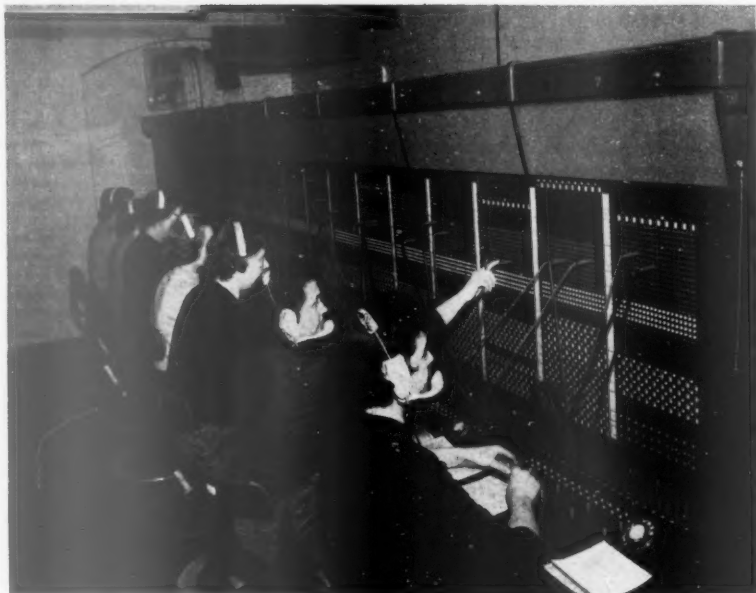
studs up to 9/16 in. and inserts up to 11/16 in. nominal outside dia.

Resins and Paint.—An illustrated booklet "The Epok Story," published by British Resin Products, Limited, describes the wide range in the uses of paints and the part played by synthetic resins in its manufacture. It has been produced as a guide to the nature and uses of Epok Surface Coating Resins, the booklet discusses the uses of paint in 15 important fields. A special section is devoted to the particular requirements of the commercial vehicle builder where finishes must be durable yet possess an attractive appearance. Examples are given of railway underground rolling stock interior decoration and bridge painting using Epok-based finishes. Copies may be obtained from the Information Department, British Resin Products Limited, Devonshire House, Piccadilly, London, W.1.

Victor Britain Car Hire Services.—An illustrated folder produced by Victor Britain Limited, whose head office is at 12a, Berkeley Street, London, W.1, gives a comprehensive list of the types of car operated by the firm at the main centres at which cars may be hired with self-drive inclusive rates, and charges for hire of cars with chauffeur. A particularly useful feature of these services is the possibility of arranging to be met with a car on arrival by train at a station. Hire can be arranged of cars both in Britain and on the Continent. The folder also contains some suggestions for tours in the British Isles of varying duration.

Private Automatic Telephone Exchange at York

First private "on demand" subscriber trunk dialling network for omnibus working with automatic code signalling



Seven-position manual switchboard

THE new private automatic branch telephone exchange brought into use in the headquarters of British Railways, North Eastern Region, at York recently is a preparatory step towards "on demand" subscriber trunk dialling throughout the Region and later throughout British Railways. The exchange has a capacity of 1,200 subscriber lines served by the standard three-stage switching, comprised of 380 first-stage switches, 170 second stage, and 300 final-stage switches. The initial trunk network is made up of 30 lines to the Post Office network, 21 ordinary railway trunks, nine voice frequency dialling trunks and 10 railway omnibus circuits. Access to these trunks is by a seven-position manual switchboard which has many features specially designed for British Railways.

Congestion on internal traffic has been completely removed and with the new switchboard much of the delay on trunk working has been eradicated. This has been achieved by channelling trunk demands for a particular district to a specific operator. The ultimate aim is to have "on demand" subscriber trunk dialling on the whole of British Railways which necessitates two-digit dialling and discrimination from York exchange. A York subscriber requiring a subscriber at Newcastle will first dial the digits 89 which will route him to Newcastle, followed by the number of the subscriber at Newcastle. It is, therefore, advantageous to introduce the two-digit dialling on the new exchange immediately.

The completion of the Regional subscriber dialling scheme is dependent upon

the provision of automatic telephone exchanges at the main Railway centres in the Region and an adequate network of interconnecting trunk lines. Plans for the provision of these facilities are actively in hand.

Pending the completion of the overall scheme, the routing equipment is being used to channel the call to a specific operator on the York exchange who deals

with the call manually. Thus it is ensured that the demand for a trunk call to a particular district is dealt with by a specific operator, and the operator is aware of the distant exchange which is required before she actually answers the call. In this way it is possible to apportion the overall demand on the manual board equally between operators. An additional advantage is the flexibility afforded by the multiple panelling of the manual board. This means that the whole of the circuits on the manual board are contained in one quarter of the overall facia panels and are, therefore, repeated four times over the seven positions. The circuit appearances can be lamped or delamped depending upon the position on which it is desired they should be answered. In addition to trunk circuits, the subscriber's multiple also appears on the manual board and it is through the multiple that all calls are connected, thereby releasing the automatic exchange equipment as soon as the subscriber's requirements are known.

Micro-Wave Radio Links

All trunk dialling, both subscriber and operator, will be by standard v.f. dialling and it is hoped that micro-wave radio telephone links between York, Darlington, and Newcastle will be a feature of the near future. The new exchange incorporates an enquiry facility whereby an extension engaged on a railway trunk or Post Office call can depress a button on his telephone and the call is automatically held whilst the extension is given access to the internal switching of the exchange to make another internal



Exchange apparatus room, showing first group selector racks

call. When the extension wishes to return to his original call he again depresses the button which releases his internal call and returns him to the trunk call.

Under the new exchange scheme omnibus circuits have also been made available to extensions on the main exchange. Access to these circuits is obtained through the manual switchboard by dialling the digits 60. The operator dials a three-digit number on an omnibus circuit to call the required party. The digits dialled by the operator pass into automatic code sending equipment which determines from the first digit the type of ringing required and from the last two digits the code to be sent out. This information is stored until the operator restores her dial key,

and is then sent out on the line to call the required party. The operator and the calling extension hear a tone duplication of the code being sent out. Night switching facilities are also provided on the exchange to confine all incoming calls to one position on the manual board and to switch omnibus circuits to a small night service board.

The new equipment replaces a 310 line exchange which was installed 25 years ago with a total of 80 switches, 12 junction circuits, and a manual board of two positions. From 1934 to 1959 the old exchange was increased and greater demands placed upon it, until a saturation point, reached about 1950, caused serious congestion within the exchange. This congestion has led to extreme difficulties being experienced by both

internal and trunk subscribers and also by the public who have been unable to establish contact with headquarters because of the lines being constantly engaged. The general overloading and congestion also led to a number of subsidiary Post Office and railway switchboards being installed in various departments throughout the York District. This position is now relieved and all the subsidiary switchboards have been recovered, bringing the whole of the York District and headquarters offices into the new exchange.

The exchange equipment was supplied and installed by the Automatic Telephone & Electric Co. Ltd., to the general requirements of Mr. A. F. Wigram, Signal Engineer, British Railways, North Eastern Region.

Multiprinter Installation in Eastern Region Town Office

Mechanisation of ticket issuing arrangements

WHEN British Railways, Eastern Region, recently transferred its town office from 110 to 127 Victoria Street, London, S.W.1, the opportunity was taken to mechanise the ticket issuing arrangements by installing a Multiprinter ticket printing, issuing and accounting machine supplied by Westinghouse Garrard Ticket Machines Limited. This system is a new venture for offices of this kind. Although the new premises are slightly smaller, the installation of the equipment will release space formerly required for ticket racks and provide additional room for members of the public and for display purposes.

The Multiprinter machine is designed to facilitate the issue of frequent, but not intensive, bookings of many different types of tickets to widespread destinations. In addition to printing, numbering, and dating the tickets as required, the machine records details of all issues in chronological order, including the number of issues from each individual series. It also maintains an aggregate debit which can be ascertained at any given time and is capable of printing and issuing 1,260 different kinds of tickets from blanks of a variety of colours.

Layout of Machine

The printing plates are stored in the main cabinet of the machine, which has a clear glass panel front. Through this panel can be seen the statistical counters, one for each plate, which advance by one unit each time the relevant print plate is brought into operation. On top of the cabinet is a movable printing carriage, and at the rear is an inclined index panel on which destination indicators are arranged in echelon form. The panel is illuminated section by section as the printing carriage is moved.

To print a ticket, the operator moves the carriage until an indicator is positioned over the desired destination. A blank ticket of the appropriate colour is then inserted into a slot. The machine instantly prints and ejects the ticket and



Multiprinter ticket printing, issuing and accounting machine

makes all necessary records of the issue.

A printed record of the state of the dissector counters can be made at any time by a device running on guide rails. This impresses on a paper strip the identification number of each printing plate and the number of times each plate has been used. All necessary statistics can be compiled from this printed record which, in effect, mechanises the old method of assessing the issues from each individual series by manual calculation. The totaliser debit can be ascertained at any time by placing a card strip in a slot at the left of the printing carriage and depressing a handle.

Method of Accounting

In practice, the clerk commences his turn of duty by printing a special ticket

which shows the date, office, and machine number. On this he inserts his name and turn of duty. He then places a strip of card in the machine and ascertains the existing debit. The same procedure is observed at the end of his turn of duty, and he is thus responsible for the difference in cash between the two debit figures.

The traditional system of accountancy to make up the ticket clerks' debit involves the manual recording of opening and closing numbers of every series of ticket in use and working out, item by item, the debit for all issues to arrive at a total debit. This involves many man hours of labour every day according to number of tickets issued. The machine will produce the total debit in a few minutes.

Type "2" Diesel-Electric Locomotive for British Railways

Mixed-traffic design with maximum speed of 75 m.p.h. Aluminium superstructure and main deck



North British Type "2" 1,000-h.p. diesel-electric locomotive with NBL/MAN engine and G.E.C. electrical equipment

TEN of 38 Type "2" main-line, mixed-traffic, diesel-electric locomotives built by the North British Locomotive Co. Ltd., are now in service on British Railways, Eastern Region. They have a design top speed of 75 m.p.h. They are

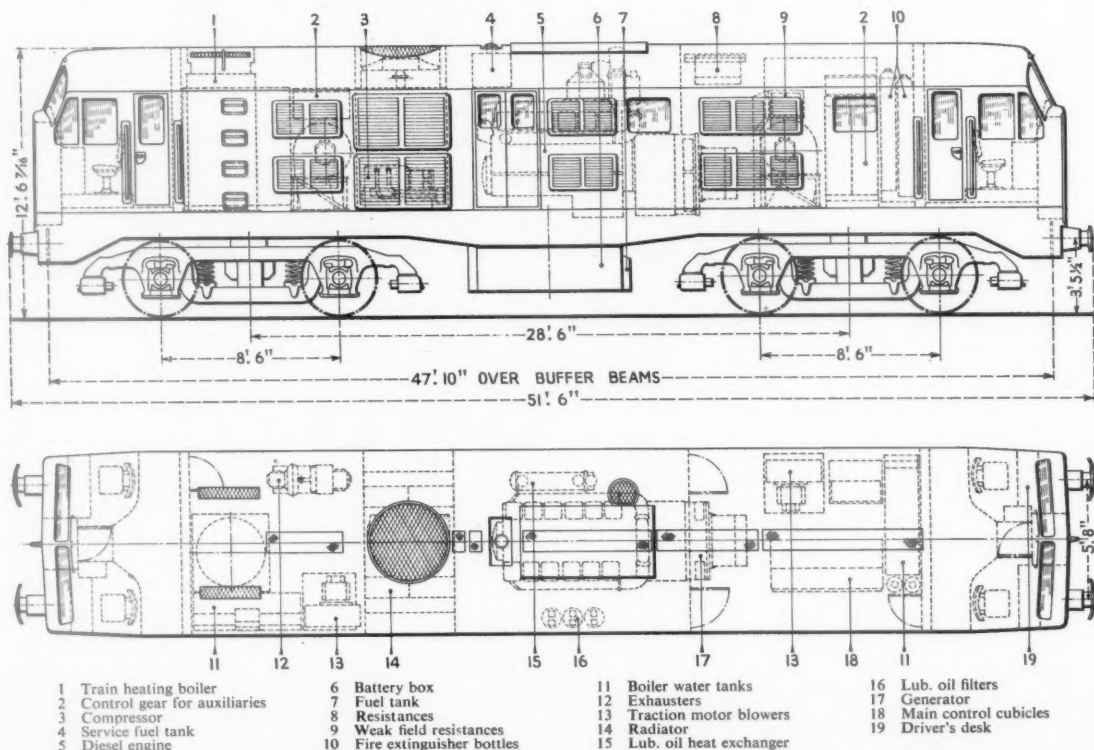
equipped with an NBL/MAN Type L12V18/21S engine and General Electric Co. Ltd. transmission and control.

Those of the first batch of 10 have their engines set at 1,000 h.p. but the remaining 28 will have their engines set at their

normal rating of 1,100 h.p. The first order received by the builders was for 10 in the original British Railways diesel locomotive prototype programme reproduced in our November 25, 1955, issue. The engines for these prototypes, then known as Type "B," were rated at 1,000 h.p. at 1,500 r.p.m. Subsequently an order was given for a further 28 followed by another order for 20. Both these batches will have 1,100-h.p. engines, and it is intended that the first 10 shall be up-rated to 1,100 h.p. The generators were designed for 1,100 h.p. Twenty of the total of 58 are intended for the Scottish Region.

The 10 locomotives in service are numbered D6100-D6109. They were designed, and are being constructed, to the general requirements of the British Transport Commission under the overall direction of the Chief Mechanical Engineer & Chief Electrical Engineer, British Railways Central Staff, Mr. J. F. Harrison. The Chief Mechanical & Electrical Engineer, Eastern & North Eastern Regions, Mr. K. J. Cook, was responsible for liaison with the contractors, and for inspection during construction and preliminary testing.

The superstructure is full-width with a cab at each end and corridor connections for passing between locomotives when coupled in multiples of two or



Side elevation and plan showing principal dimensions and interior arrangement Type "2" locomotive



Driver's position, showing controls, vacuum and air pressure gauges, speedometer, and ammeter; the controller on right has 10 power positions

three units with the same or certain other types of British Railways diesel-electric locomotives.

Leading particulars are as follow:

Wheel arrangement	...	Bo-Bo
Maximum speed	...	75 m.p.h.
Maximum tractive effort	...	45,000 lb. at 11 m.p.h.
Continuous rated tractive effort	...	25,000 lb. at 1,000 h.p. at 11 m.p.h.
	...	30,000 lb. at 1,100 h.p. at 10 m.p.h.
Weight in working order	...	72.5 tons
Minimum curve negotiable	...	4½ ch.
Fuel oil capacity, engine and boiler	...	460 gal.
Boiler water tank capacity	...	600 gal.
Length over buffers	...	51 ft. 6 in.
Overall width	...	8 ft. 8 in.
Overall height	...	12 ft. 8 in.
Bogie wheelbase	...	8 ft. 6 in.
Bogie pivot centres	...	28 ft. 6 in.
Wheel diameter	...	3 ft. 7 in.

Body and Equipment Layout

To reduce weight, the complete superstructure is made in aluminium. Extruded channels and I-sections welded together form the framework to which the aluminium skin is riveted. The roof is made in detachable sections to permit easy removal of equipment during overhaul. In each body side is a maintenance door and two fixed windows. Vokes panel-type filters are fitted in the body sides of the engine, generator, and boiler compartments.

Between the two cabs the body is divided by a bulkhead across the generator into two compartments. Immediately behind the No. 1 end cab bulkhead is the train-heating boiler. Between this and the body side is a vertical 290-gal. boiler water tank. The air brake reservoir is mounted in the roof of the boiler compartment.

Between the boiler and the radiator unit are the traction motor blower on one side and two tier-mounted exhausters on the other. Adjacent to the exhausters is a bank of E.P. valves carried on a steel frame. Above the traction motor blower is one L.T. switchgear cubicle. The Oerlikon brake gear compressor is in the radiator tunnel. Roof-mounted above the free end of the engine is a 100-gal. service fuel tank. The H.T. switchgear cubicle, one L.T. switchgear cubicle, one traction motor blower, and a bank of

electrical resistances are in the generator compartment.

Against the cab bulkhead is the 310-gal. boiler water tank and the fire extinguisher bottles.

The train heating boiler is a Spanner oil-fired single-pass Swirlyflo, with fully automatic controls for starting up, water level, and burner control according to the required output. The main fuel tank, with a capacity of 360 gal., is underslung between the two bogies. All fuel and water tanks are made in sheet aluminium.

Cabs and Controls

The full-width cab at each end is built up of aluminium castings bolted or welded together. Adjustable upholstered seats, which hinge inwards, are provided for the driver and assistant. Each is on a raised platform.

Behind the seats are the aluminium cab

doors with fixed windows. There are Beclawat full-drop windows at the sides of the seats. The access door to the power compartment is behind the assistant's seat. The deep front screens, with air intake louvres above, are fitted with Trico-Folberth pneumatic wipers. Warm air for de-misting is drawn from the Smiths cab heaters.

For sound insulation the sheet aluminium rear bulkhead is faced on the engine compartment side with a 5-in. layer of Fibreglass, sealed with a perforated aluminium sheet.

On the driver's desk are the vacuum and air brake valves, warning horn, and push-buttons for engine start/stop, locomotive-brake cut-out, A.T.C. apparatus, and overload reset.

On the fascia panel are the speedometer, wheel slip indicator, ammeter, and vacuum and air pressure gauges. Above the gauges are the lighting switches, a fault-indicating pilot lamp, and an engine-stopped indicator for use when working in multiple.

On the assistant's desk are the boiler pressure gauge, low water alarm, warning horn, marker light switches, and A.T.C. switch.

The alarm bells, hand brake wheel, hand fire extinguishers, and drivers' cooker and food cabinet are fitted on the cab rear bulkhead.

Engine

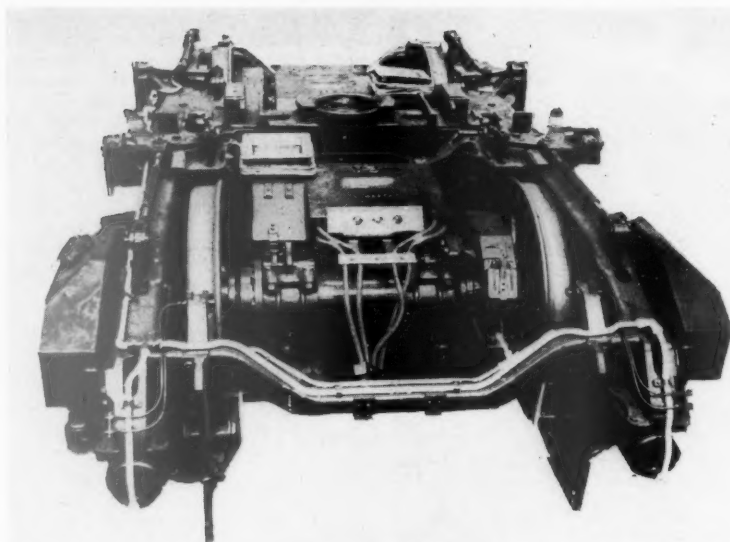
The diesel engine is the 12-cylinder vee - turbo - charged four-stroke NBL/ MAN Type L12V18/218. The bore is 180 mm. and stroke 210 mm. The engine is identical with the power units fitted in the 2,000-h.p. diesel-hydraulic locomotive supplied by North British for British Railways, Western Region.

Induction air to the Napier turbo-charger is ducted from panel-type filters in the body side.

Lubricating oil temperature is controlled by a Serck heat exchanger. A motor-driven pump is fitted for lubricating oil priming, and an engine-driven pump for fuel oil transfer from the main



Second man's desk with train-heating pressure gauge, warning horn control for low-water alarm, and marker light switches



Complete swing-bolster-type bogie with one-piece cast-steel frames and resilient single-reduction drive gears

fuel tank to the engine service tank. The combined engine and generator is carried on pedestal-type Metalastik Cushyfoot mountings.

Automatic temperature control of the Serck cooling group is by means of the Serck/Behr hydrostatic fan drive. The hydraulic motor driving the roof-mounted fan is powered by an engine-driven hydraulic pump. Fan speed is regulated according to requirements by a thermostatically-controlled bypass valve between the pump and motor.

Shutters on the radiators are automatically opened or closed as the pressure driving the fan motor rises or falls. Independent coolant circuits are used for the lubricating heat exchanger and for the radiator.

Generators and Traction Motors

The G.E.C. electrical equipment fitted is generally similar to that used in the NBL/Paxman engined Type "1" diesel-electric locomotive described in our August 22, 1958 issue. The main generator is a G.E.C. Type WT880, with a continuous rating of 1,700 A. at 1,500 r.p.m. This is a six-pole self-ventilated single-bearing machine with windings for self-excitation, separate excitation, series winding for counter-compounding, and a series winding for motoring the generator for starting the engine.

The auxiliary generator, flange-mounted to the main generator, is a G.E.C. Type WT.761 with a continuous rating of 35 kW. 318 A. 110 V.

Voltage control is by a Newton carbon-pile regulator. The armature is carried on the main generator rotor. The four axle-hung nose-suspended traction motors are connected in permanent parallel and drive through resilient type reduction gears. These motors are G.E.C. Type WT.440 rated at 189 h.p. at 375 r.p.m. taking 425 A. at 375 V.

The traction motor blowers, one in the boiler compartment and one in the generator compartment, draw filtered

air through the body side and deliver to the motors through aluminium trunking attached to the underside of the main deck. The electrical equipment ratings given above are for the 1,000-h.p. engine rating.

Control Gear

The driver's master controller is fitted with two handles. One controls the power output and the other the selector shaft. The latter has positions for "engine start," "off," "forward," and "reverse." The power shaft controls the main circuit contactors, the engine governor speed setting valves, oil servo-control valves, and other circuits required for operating in multiple.

The four traction motor circuits are controlled by electro-pneumatic contactors and overload relays. An advanced degree of motor field weakening is provided by three steps of field diversion taken automatically.

In the A.T.C. apparatus the change end switch has a contact in the feed to the master controllers. This ensures that the locomotive cannot move under its own power until the A.T.C. equipment is made operative.

The main control cubicle is in the generator compartment, next to No. 2 cab. The auxiliary control gear cubicle, housed in the same compartment, is supplemented by a small switch cubicle above the traction motor blower in the boiler compartment. Mounted alongside the main fuel tank are the D.P. batteries of 123 A.-hr. capacity.

Bogies

The swing bolster bogies incorporate Commonwealth one-piece cast-steel frames supplied by the English Steel Castings Corporation. The cast-steel bolster provides a deep flat-bottom centre pivoting on a cast-steel spigot attached to the underframe. No centre pin is fitted. The bolster centre is arranged to engage with retaining brackets attached to the underframe. The

bolster is supported by laminated springs carried on a spring plank suspended by swing links from the bogie frame. Skefko roller-bearing axleboxes are fitted.

Brakes

Air braking for the locomotive and vacuum braking for the train are of the Oerlikon design supplied by Davies & Metcalfe Limited. The air brake cylinders are mounted horizontally on the bogie frame, operating through clasp brake rigging. The hand brake operates through the power brake rigging on the bogie, adjacent to the cab handwheel. A motor-driven Oerlikon compressor supplies the air braking. The Reavell exhausters are driven by two-speed G.E.C. motors. Aluminium piping is used for the vacuum braking and light steel piping for the compressed air.

The brake equipment includes a locomotive brake release control to facilitate uncoupling, and a fitted/unfitted switch to reduce the air braking when hauling unfitted stock.

Standard side buffers screw couplings, and drawhooks are fitted.

Sub-contractors for the locomotive include:—

Brake equipment	...	Davies & Metcalfe Limited, Westinghouse Brake & Signal Co. Ltd.
Radiator and heat exchange	...	Serck Radiators Limited
Heating boiler	...	Spanner Boilers Limited
Bogie castings	...	English Steel Castings Corp. Ltd.
Aluminium cab assemblies	...	Lightalloys Limited
Aluminium fuel and water tanks	...	Marston & Excelsior Limited, F. Braby & Co. Ltd.
Axleboxes	...	Skefko Roller Bearing Co. Ltd.
Springs	...	English Steel Castings Corp. Ltd., W. Griffith & Sons, Ltd., George Spencer, Moulton & Co. Ltd.
Wheel centres	...	Carntyne Steel Castings Limited
Axles and Tyres	...	Taylor Bros. & Co. Ltd.
Cab seats	...	Hallam, Sleight & Cheston Limited
Fuel and Lubricating Oil pumps	...	Mirrlees (Engineering) Limited, Dowdy Hydraulic Units Limited
Cab windows	...	Beckett, Laycock & Watkinson Limited
Speedometer and mileometer	...	British Thomson-Houston Co. Ltd.
Instruments	...	Smiths Industrial Instruments Limited, K.D.G. Instruments Limited, Record Electrical Co. Ltd., Teddington Industrial Instruments Limited
Engine resilient mountings	...	Metalastik Limited
Fire fighting equipment	...	The Pyrene Co. Ltd.
Air filters	...	Vokes Limited
Windscreens wipers	...	Trico-Folberth Limited
Flexible couplings	...	Laycock Engineering Limited
Flexible gangways	...	A. G. Wild & Co. Ltd.
Buffers	...	George Turton, Platt & Co. Ltd.
Flexible hoses	...	(Aeroquip) Super Oil Seals & Gaskets Limited
Fuel injection pumps	...	C.A.V. Limited
Horns	...	C. V. Desiderio

OFFICIAL RE-OPENING OF THE FESTINIOG RAILWAY.—The official re-opening of the Festiniog Railway for the 1959 season will take place tomorrow when a ceremony will be performed at Portmadoc Harbour Station by Major-General G. N. Russell, this year's President of the Institute of Transport, Chairman of British Road Services, and a member of the Eastern Area Board of British Railways. Last year the Festiniog Railway carried just over 60,000 passengers, ending the year with an operating surplus of £201.

Temple Mills Marshalling Yard

Hump classification yard with two stages of retardation and two subsidiary yards



Wagon on one of the two primary retarders with the hump and hump cabin in background

TEMPLE Mills Marshalling Yard, British Railways, Eastern Region, is situated between Stratford and Lea Bridge Stations on the former Cambridge main line from Liverpool Street via Stratford. During the latter part of the last century several yards were added to accommodate an increasing volume of freight wagons.

When, in 1954, it was decided to reconstruct Temple Mills as a new freight

eliminate this and thus speed up the movement of freight wagons.

Two-Directional Working

The new hump yard is designed for two-directional working and equipped with Westdair primary and secondary retarders. It consists of one main yard and two subsidiary ones. In the old layout the main lines ran through the middle of the existing yards, and to

lifting shop is built on piles and is 455 ft. long and consists of two low roof bays, each 75 ft. wide for the repair of wagons and one high-roof bay 50 ft. wide which serves the lifting shop. The building is constructed with side glass curtain walling and corrugated asbestos roof insulation. Roller shutter doors are fitted with air curtains which operate automatically when the doors are open. The shop is equipped with two wheel lathes, two journal lathes, an axlebar washing machine, an axle-journal turning and grinding machine, and a layout for the repair of vacuum cylinders.

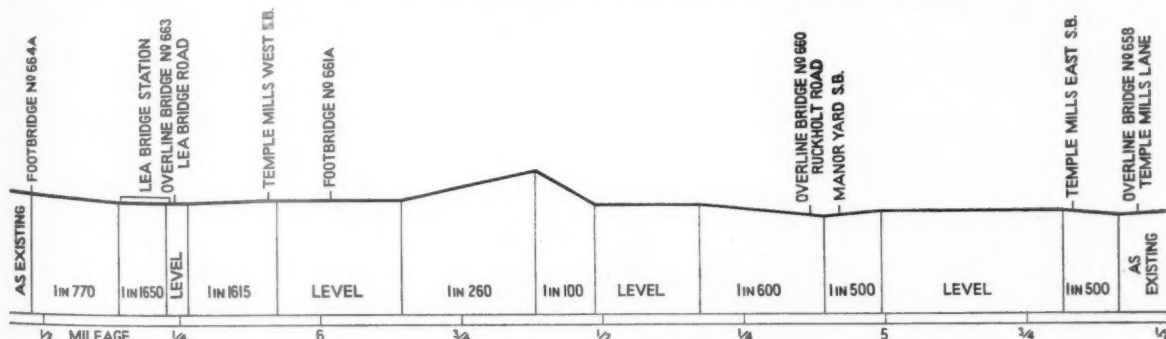
Reception Sidings

At the Lea Bridge or western end of the site there are 12 reception sidings on a straight alignment with wagon capacities varying between 42 and 75 wagons, giving a total standage capacity of 680 wagons. The sidings are laid at 12 ft. 2 in. centres to give an interval of 7 ft. 5½ in. between running edges, with a wide space of 14 ft. 5½ in. between the upper and lower groups for the installation of lighting masts.

The gradients of the sidings are rising at 1 in 1,615 for the first third of the length, rising at 1 in 460 for the middle third, and 1 in 40 up to the summit of the hump. Seven of the southernmost sidings can be entered from either direction.

Trains entering from the down direction come into the reception sidings on a special arrival road alongside the main hump, but at a lower level. The 13th siding on the south side serves as an engine line so that the hump shunting engine can return to the Lea Bridge end of the yard where there is a hump engine spur.

The arrangement of the connections



Gradient diagram of main lines through the yard

marshalling centre there were 10 yards at Temple Mills itself, and some five satellite yards in the outer London area. Reconstruction had become essential because the old layout caused a great deal of trip working between yards; many wagons having to be shunted several times before eventually leaving the final yard on the correct trains. The new layout was expressly designed to

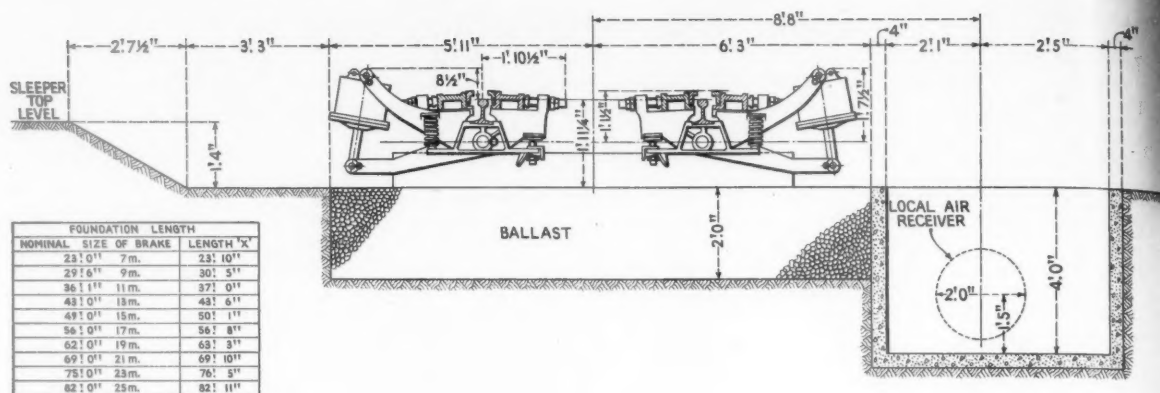
make room for the new layout they had to be diverted onto a new alignment on the south side of the site.

Towards the middle of the site the new main lines pass through the area which was occupied by the Temple Mills wagon repair shops. To clear the area for the realignment of the running lines the wagon repair shop had to be reconstructed on a new site. The wagon and

at this end of the yard is such that the hump engine can return to its spur without interrupting the flow of trains from the running lines into the reception sidings. All these connections are power operated from Temple Mills West Signalbox.

Sorting Sidings

The sorting sidings are arranged in eight groups each of six sidings with a



Front and side elevation of electro-pneumatic retarder, showing foundation length for nominal size of brake

brake siding on the two outermost groups and a transfer road on the northernmost group. The groups are lettered A, B, C, D, E, F, G and H, from south to north, and the sorting sidings in each group are numbered from one to six in the same direction. The shortest siding accommodates 51

wagons, and the longest 82. The total standage capacity of the 47 sidings is 3,044 wagons.

The sidings are laid at 12 ft. 2 in. centres giving a 7 ft. 5½ in. clearance between running edges with 14 ft. 5½ in. spaces between the fans for lighting masts.

The hump cabin and its associated relay room are situated at the summit of the hump on the right hand side, and the control tower is on the centre line of the yard between the primary and secondary retarders.

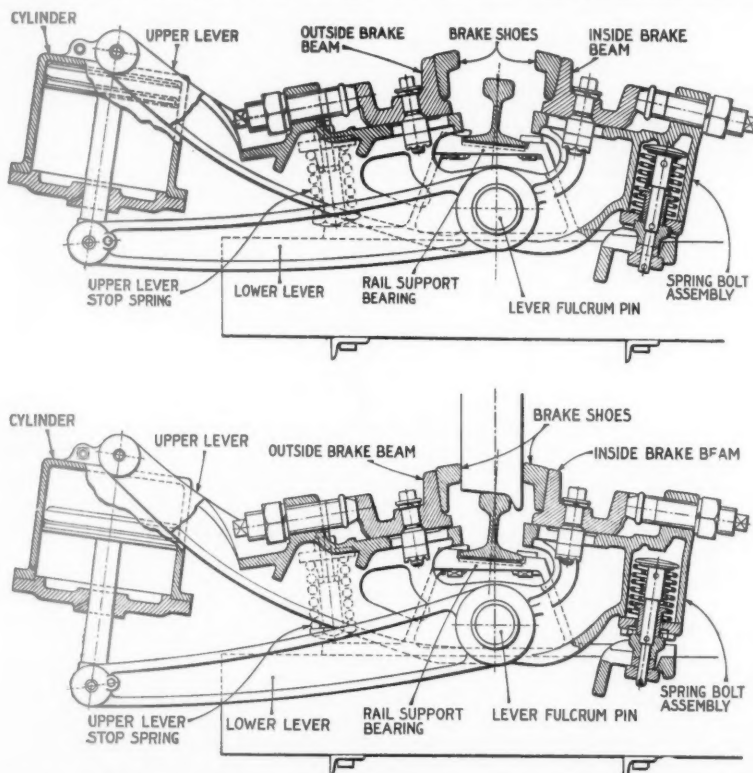
Departure Sidings

At the Stratford end of the yard there is a group of eight departure sidings with capacities ranging between 55 and 71 wagons, and with a total standing capacity of 499 wagons. Departure is possible from all eight departure sidings in both the up and down directions.

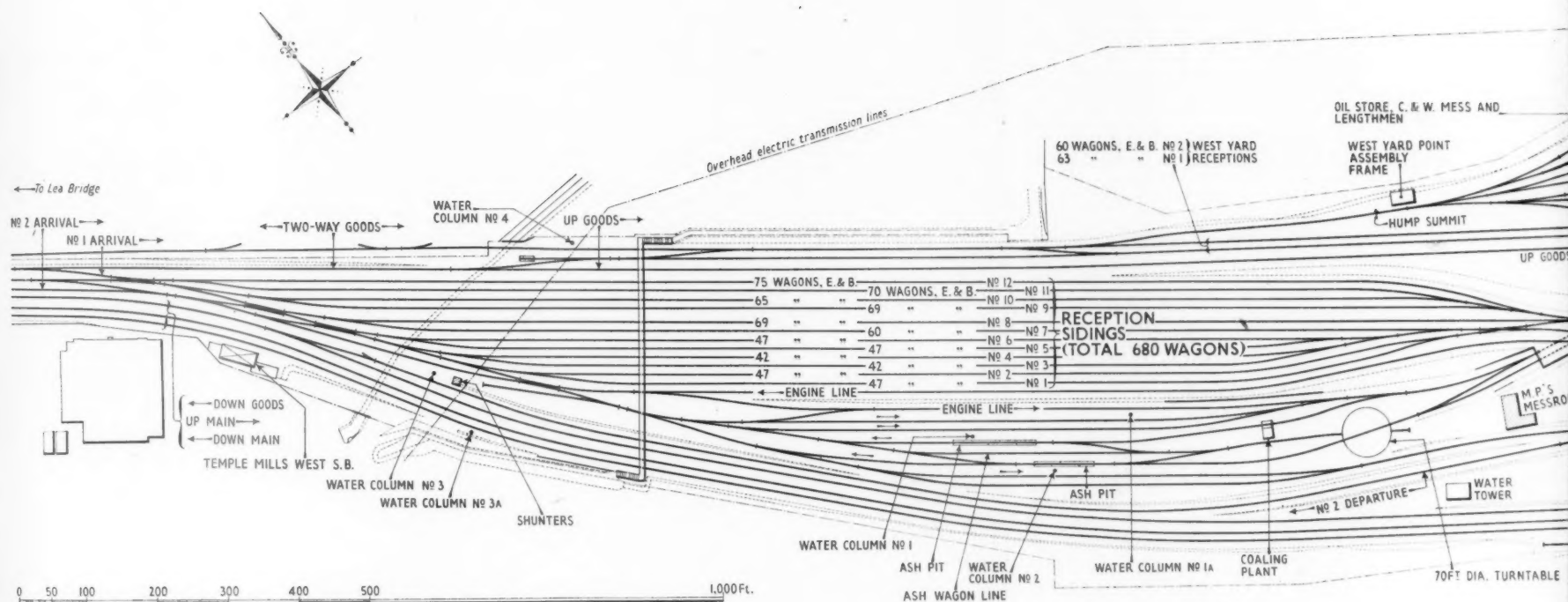
The two subsidiary yards are known as the West and East Yards. The West Yard is situated to the north of the hump area and sorting sidings. It consists of 16 dead end sidings with a wagon standage capacity of 1,024 wagons and two reception lines accommodating 60 and 63 wagons. The yard has a small gravity hump 5 ft. high. The point assembly is connected to a ground frame housed in a building at the summit of the hump. This yard is used for secondary sorting and as a reservoir. The East Yard is situated to the north of the departure sidings and like the West Yard is used for secondary sorting and as a reservoir.

Retarders

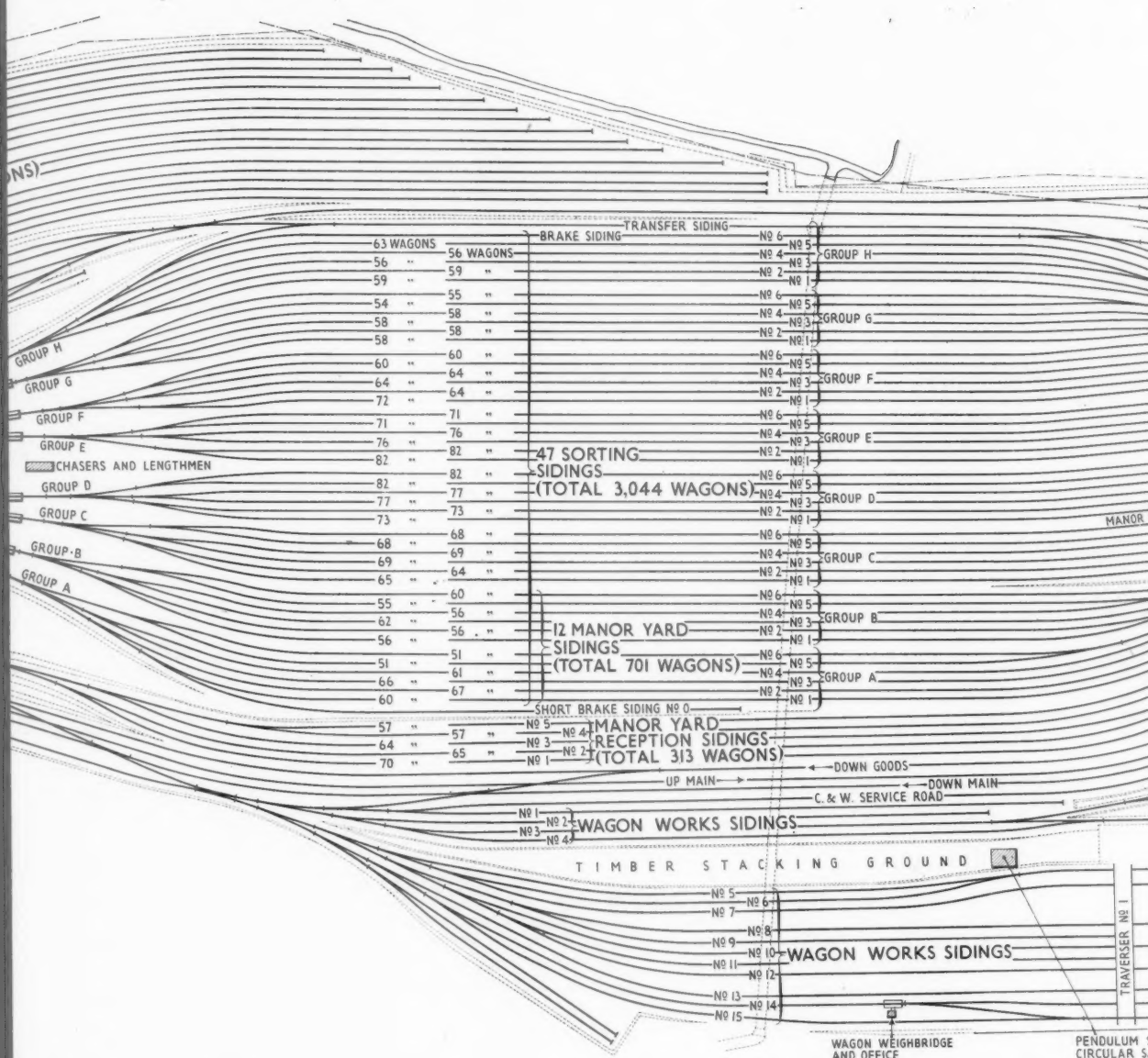
The two stages of retardation are provided by two primary retarders and eight group retarders. The hump layout comprises a king turnout followed by



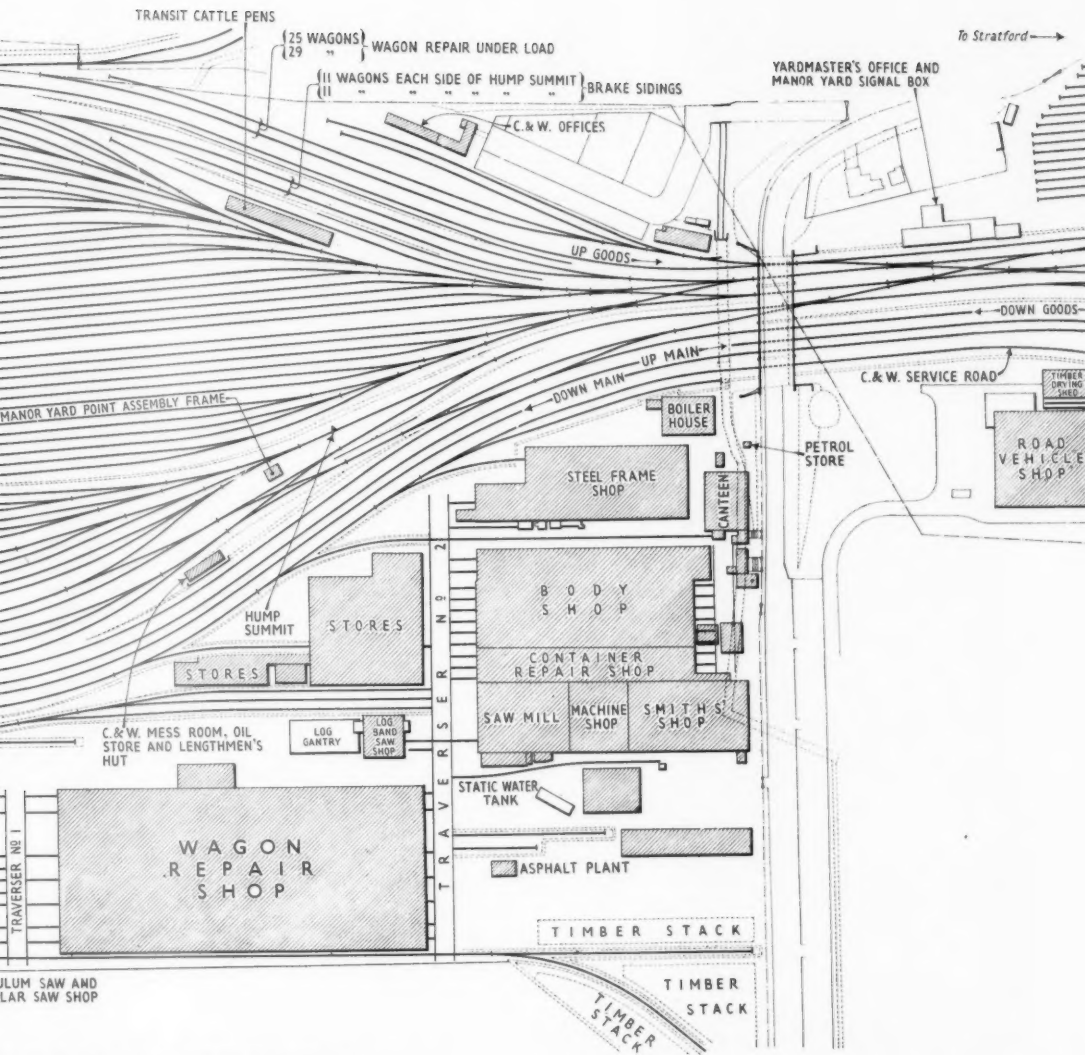
Working diagram of electro-pneumatic retarder, showing (above) normal and (below) operating position



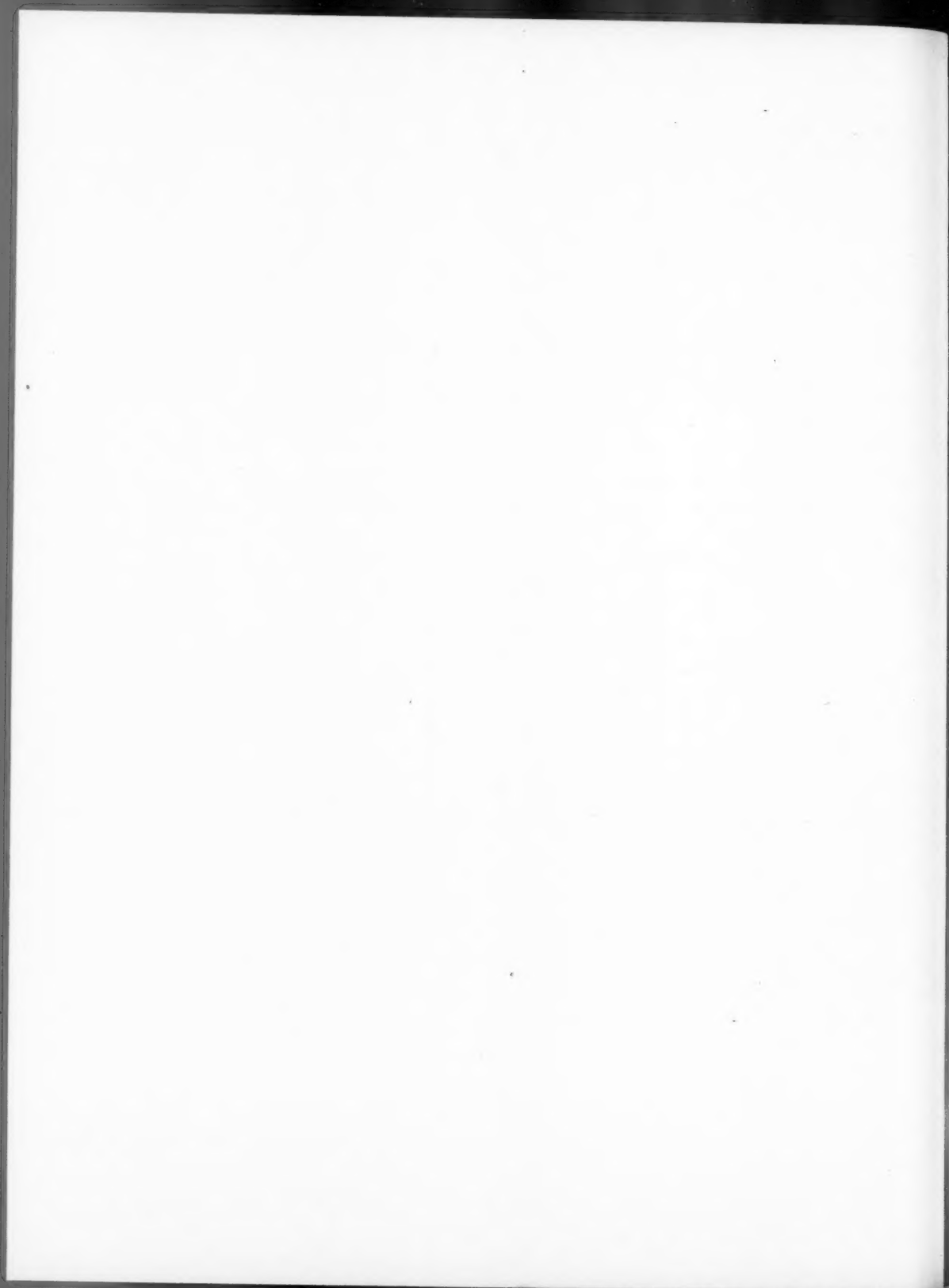
LAYOUT OF RECEPTION AND SORTING SIDINGS AT TEMPLE MILLS



RAILWAYS, EASTERN REGION, SHOWING TWO STAGES OF RETARDATION I



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the two primary retarders, two queen turnouts and four jack turnouts, immediately followed by the eight secondary retarders.

The retarders are Westinghouse electro pneumatically operated Westardairs. The primary retarders are 75 ft. long overall, they have 22 operating cylinders each, and are automatically controlled. The group retarders are 49 ft. long overall, with 16 cylinders each. They are manually controlled.

Westardairs are of unit construction. The beams extend from one cylinder unit to the next, and are built together to form an articulated and flexible retarder. The brake shoes are arranged with their joints in the centre of each beam, so that when the retarder flexes at the beam joints, the shoes, which are continuous over these joints, allow the wagon wheels to pass the joints smoothly without any variation in braking effort. The shoes are of special steel to provide flexibility and a good coefficient of friction with durability.

The retarders operate on the nut-cracker principle. A pair of levers are mounted on a fulcrum below the rail, the levers extending outside the track, with the cylinder attached to the upper lever and the piston rod to the lower lever. The upper lever carries the outer beam and the lower lever the inner beam. When the cylinder operates the upper lever is raised and the lower is depressed so that the beams are thrust towards each other and the shoes grip the wheels of the wagons as they pass through.

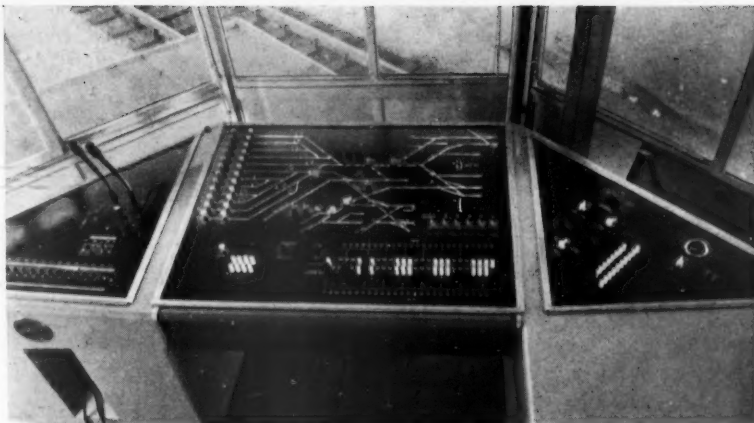
Should a wagon be rocking from side to side there is no variation in grip on the wheel, for the whole lever assembly can swing on the fulcrum to follow the sideways motion of the wheel. Because of the articulated construction any variation in wheel width in a cut of wagons does not affect the grip on individual wheels.

Control of Retarders

Control of the primary retarders is automatic with overriding manual control. Each of the retarders is divided for control purposes; the first five pairs of cylinders are controlled by one valve unit and the remaining six pairs of cylinders are controlled by a second valve unit. These valve units are specially developed for use with the automatic control.

The track through the primary retarders is divided into three rail circuits; the first controls the application of the automatic control to the first valve unit, and the last two perform the same function for the second valve unit. Two rail circuits are used in the second part because the queen points are immediately after the retarders, and point protection must start in the retarder to be adequate. The last rail circuit of the retarder, therefore, performs two functions. First, in conjunction with the second retarder rail circuit it controls the retarder; secondly, in conjunction with the rail circuit over the switches of the queen points it forms the point protection rail circuit and thus controls the route setting over these points.

The automatic control of the retarders is effected by making use of the Doppler



Hump control desk, showing diagrammatical representation of the track layout

effect to measure the speed of the cuts by three R.F. units, the first measuring speed to give the rolling resistance of the cuts. The cuts are classified accordingly and each classification has a leaving speed allotted to it. The remaining two R.F. units are used to measure the speed of the cuts in the first and second parts of the retarder respectively, and take part in controlling the retarder application.

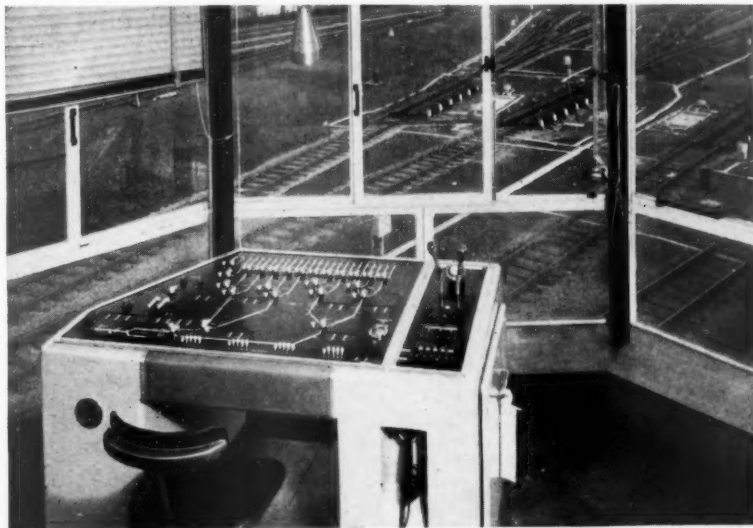
These speed measurements determine the leaving speed from the retarder so that cuts arrive at the group retarder correctly spaced, that is the better running cuts are so retarded that they do not close up on preceding poorer running cuts between the primary and group retarders and so prevent correct routing nor do the cuts enter the group retarders before a preceding cut has left the retarder, unless the preceding cut had been stopped due to some emergency.

In addition, for each primary retarder there is a "weigh rail" which classifies the cuts into three categories: light, medium, and heavy. This information is passed to the automatic control gear and selects the maximum pressure to be

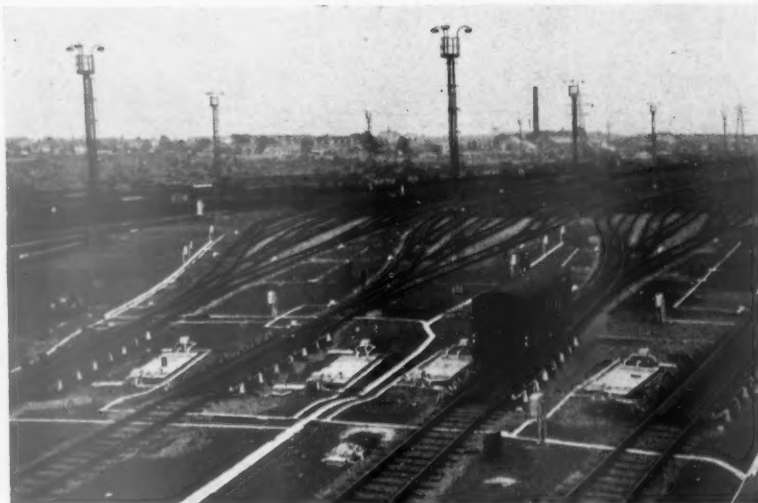
applied to the retarder for the cut concerned. The leaving speed having been selected, pressure is applied should the speed be in excess of this. When the cut speed has fallen to the required value the retarder is released, so that the cut leaves at the correct speed. Should the cut accelerate whilst still in the retarder after being released, then the pressure will be reapplied to correct the speed of the cut. By this means the leaving speed of the cut is controlled to within very small limits.

Secondary Retarders

The group retarders are controlled as one unit, although there are two standard simplex valves per retarder which operate in parallel under the control of push-buttons on the control desks in the control tower. There are five push-buttons for each group retarder; off, 1st pressure, 2nd pressure, 3rd pressure, and 4th pressure. Also on the control desks there are similar sets of push-buttons for each valve unit of the primary retarders. On each control desk in the control tower there are therefore, two sets of five push-buttons above a primary



Control desk in the control tower for groups E to F



Secondary retarders for groups E, F, G and H

retarder and four sets of five push-buttons along the lower edge of the desk directly below each group of sidings, one for each group retarder. In addition each primary retarder has an auto/manual switch mounted above its control buttons, to select automatic or manual control.

Indications of weight and rolling resistance are shown on the desks, in illuminated panels adjacent to the primary and group retarders. These indications are incorporated in the cut indication panels. For the weight, "H" indicates heavy and "L" indicates light, and "HL" indicates medium, similarly for rolling resistance, "G" indicates a good roller, "B" a bad roller, "BG" an average roller. The combinations "HL" and "BG" were used because of space considerations, as this arrangement avoids the use of separate indicating lamps for medium weight and average roller.

The retarders are powered by compressed air at a maximum pressure of 120 lb. per sq. in. which is produced by three electrically driven air-compressors housed within the control tower building. Two of these compressors are selected

as duty compressors at any one time whilst the third acts as a stand-by.

Lighting for night working in the yard is by colour-corrected mercury-vapour lamps mounted on 72 50-ft. tubular steel towers installed throughout the yard.

Signalling

The signalboxes have been equipped with panel keys for operating signals on the entrance-exit principle. The control panel at Temple Mills East signalbox has an illuminated operating panel showing the layout of the lines and connections located within the control area of the box. Rotary keys for each signal or group of signals are located on the diagram. These are the "entrance" keys. At the remote end of each signal route on the panel layout is a push-button key, known as an exit key. The method of operation is similar in the Temple Mills West box, although a different type of electro-magnetic "point set" indications are provided.

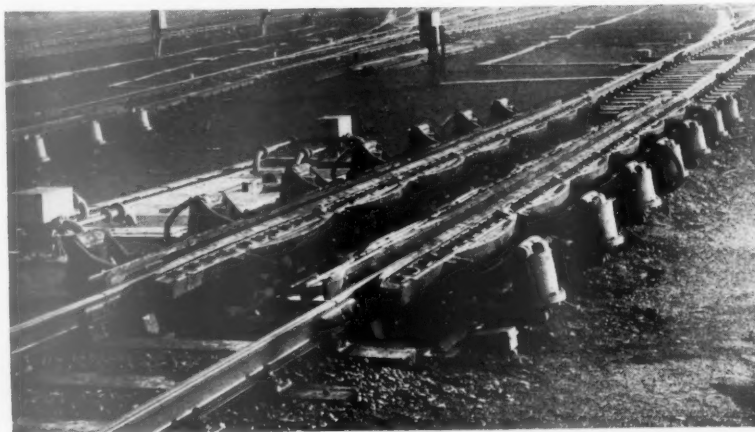
Telecommunications

The telecommunications network throughout the yard comprises a 100-line

private automatic branch exchange. All signalboxes and offices have an automatic telephone. There is also a two-way radio network which provides constant radio communication between shunting engines and the hump cabin and control tower. A loudspeaker system has also been installed to enable the control tower operators to speak to shunters and other staff in the yard or departure areas by throwing the appropriate keys on the control panel. Construction of the yard was under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region. Mr. K. J. Cook, Chief Mechanical & Electrical Engineer, was responsible for the supply and installation of mechanical and electrical equipment, and Mr. R. A. Green, Signal Engineer, for the resignalling and telecommunications. Earthworks and track laying was carried out under the direct supervision of the District Engineer, Stratford, whose labour forces were augmented by those of Tersons Limited.

The principal sub-contractors are as follow:—

Retarder and signalling equipment associated with the hump cabin and control tower, wagon counting equipment, and the wagon description system	The Westinghouse Brake & Signal Co. Ltd.
Domino panel indications for the control tower	Tyer & Co. Ltd.
Signalling equipment associated with the Temple Mills West and Copper Mills Signalboxes	Metropolitan - Vickers G.R.S. Limited
Signalling equipment associated with Temple Mills East and Manor Yard Signalboxes	The Siemens & General Electric Railway Signal Co. Ltd.
P.A.B.X. telephone equipment	The Reliance Telephone Co. Ltd.
V.H.F. radio telephone equipment	Marconi's Wireless Telegraph Co. Ltd.
50-ft. lighting towers	Tubewrights Limited
Yard lighting equipment	General Electric Co. Ltd.
Transformers	Metropolitan - Vickers Electrical Co. Ltd.
High-voltage switchgear	British Thomson-Houston Co. Ltd.
High-voltage cables	Johnson & Phillips Limited
Yard lighting installations	Clough Smith & Co. Ltd.
Control tower and main buildings	Johnson & Phillips Limited
Shunters' cabins, etc.	Kirk & Kirk Limited
General engineering	J. & J. Dean Limited
Piles	W. & C. French Limited
	Holmprice Piles Limited



Electro-pneumatic manually operated group retarder

DESIGN OF THE YEAR AWARD.—Bernard Wardle (Everflex) Limited, which supplies P.V.C.-coated fabrics for railway upholstery, panelling and so on, have received a Design of the Year Award by The Council of Industrial Design for "Piazza," by Edward Pond, Staff Designer for the company. Presentation of the award was made by the Duke of Edinburgh yesterday (Thursday) at the London Design Centre.

BRITISH RAILWAYS WAGES VAN STOLEN BY MEN POSING AS POLICE.—Five men, two wearing Metropolitan Police uniforms, stopped a British Railways van in Stratford, East London, on May 6, and told the nine occupants that a hold-up had been planned some distance down the road. After being shown false identity cards the nine railwaymen who had been returning to Stratford Station, Eastern Region, with £1,366 in silver and copper, got out of the van and allowed the bogus police officers to drive the van away. The van was found abandoned and empty about half a mile from Stratford Station.

RAILWAY NEWS SECTION

PERSONAL

We regret to record the death on May 9, at the age of 70, of Sir Archibald J. Boyd, Chairman of the Metropolitan-Cammell Carriage & Wagon Co. Ltd. Sir Archibald J. Boyd was born in 1888 and educated at Harrow and Trinity College, Oxford. He entered the steelworks of Cammell Laird & Co. Ltd. as a pupil and, after passing through the various departments, became Assistant London Manager of the company in 1913.

1950. Sir Archibald Boyd was Chairman of the Patent Shaft & Axletree Co. Ltd., and a director of the following companies: Cammell Laird & Co. Ltd., Associated Electrical Industries Limited, General Accident Fire & Life Assurance Corporation Limited, Monks Investment Trust Limited, Metropolitan-Cammell Carriage & Wagon Co. Africa (Pty.) Ltd., and Bus Bodies (South Africa) Limited. During the recent war 80 per cent of the capacity of the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

(Dining Car Services) in 1951, and Assistant Catering Manager in 1956.

We regret to record the death on May 10, at the age of 89, of Mr. Francis Ernest Wentworth-Sheilds, O.B.E., M.Inst.C.E., M.I.Struct.E., former Docks Engineer, Southern Railway, and President of the Institution of Civil Engineers, 1944-45. Mr. Wentworth-Sheilds was born in 1869 and educated at St. Paul's School. From 1892 to 1896 he was Assistant Engineer on a number of engineer-



The late Sir Archibald J. Boyd
Chairman of the Metropolitan-Cammell
Carriage & Wagon Co. Ltd., 1956-59



The late Mr. F. E. Wentworth-Sheilds
Docks Engineer of the L.S.W. and
Southern Railways, 1909-36

The following year he went on active service as an officer of a Territorial battalion, was recalled in 1916, and became Assistant General Manager of the new works built by Cammell Laird & Co. Ltd. at Nottingham, for the manufacture of armaments. In 1919 he returned to London as Assistant Manager, becoming London Manager, in 1921, and a local director in 1925. In the same year he was elected a Director of the Midland Railway Carriage & Wagon Co. Ltd., the Leeds Forge Co. Ltd., and the Newlay Wheel Co. Ltd., the controlling interests in which had been acquired by Cammell Laird. On the formation, in 1929, of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., he became a director of the new combined undertaking, with charge of the London office and the sales of the company. In 1934 he became Managing Director, a position he held until he relinquished it, in 1953, while remaining a director and available in an advisory capacity. He was appointed Chairman of the Metropolitan-Cammell Carriage & Wagon Co. Ltd. in December, 1956. He was knighted in

was devoted to tank production. From October, 1942, to December, 1943, Sir Archibald Boyd served as Director-General of Tank Production in the Ministry of Supply. He was a member of the Overseas Trade Development Council in 1945.

Mr. Aziz Ahmad has been appointed Chief Engineer, Eastern Bengal Railway, in succession to Mr. B. A. Khan.

The caption to the picture of Mr. M. M. Khan, in our issue of last week was incorrect. Mr. Khan has been appointed General Manager, Western Railway of India, as stated in the text, and not General Manager of the North Western Railway.

Mr. H. C. Swart, Assistant Catering Manager, South African Railways, has been appointed Catering Manager. He succeeds Mr. V. G. Reitz, who retires on May 21. Mr. Swart joined the South African Railways, in 1948, as Superintendent (Wines & Spirits). He was appointed District Manager (Catering) in 1949, Superintendent

ing works, including the Salford docks of the Manchester Ship Canal, and dock extensions at Southampton. He was Resident Engineer on the construction of the North Cornwall extension line, London & South Western Railway, 1896-99; the Bakerloo tube railway, 1899-1901; the Trafalgar Graving Dock and deep-water quays at Southampton, 1901-05; and on the building of the Isna Barrage, Egypt, 1905-07. He was Chief Engineer of the White Star Dock, and the widening of Trafalgar Graving Dock, Southampton. He was Docks Engineer, London & South Western Railway, and subsequently of the Southern Railway, from 1909 until his retirement in 1936. Between 1923 and 1936 the great scheme of docks extensions at Southampton was designed and carried out under his direction. In 1919-20 he visited Calcutta to advise on the new docks. In 1914 he was awarded the George Stephenson Gold Medal of the Institution of Civil Engineers, and in 1921 was Vernon Harcourt Lecturer. Mr. Wentworth-Sheilds was Past-President of the Institution of Structural Engineers.



Mr. J. B. Fender
Appointed Treasurer of the
North Eastern Region

Mr. J. B. Fender, Docks Accountant, Middlesbrough & Hartlepoons, British Transport Docks Division, who, as recorded in our May 1 issue, has been appointed Treasurer, North Eastern Region, British Railways, trained with Price Waterhouse & Co., Ltd., Chartered Accountants, Newcastle-on-Tyne. He served with the R.A.M.C., from 1939 to 1945, in Africa and Europe. After demobilisation he joined the National Coal Board, Northern Division, at Newcastle and, in 1950, took an appointment in the Headquarters of the Docks & Inland Waterways Executive, British Transport Commission. In 1951, he became Senior Accounting Assistant, Southampton Docks, and in 1957, was appointed Docks Accountant, Middlesbrough & Hartlepoons. Mr. Fender is an Associate of the Institute of Chartered Accountants. The appointment is part of the reorganisation of the Treasurer's Department, under which separate organisations in the Eastern and North Eastern Regions are established. As the revised arrangement develops, Mr. Fender will assume at headquarters at York, responsibility for the work of the Treasurer's Department, North Eastern Region.

Mr. F. L. Riggan, Jr., Executive Vice-President & Director, Muller Brass Company, has been appointed a director of Canadian National Railways.

Mr. W. E. G. Hewings, Principal Executive Assistant (Deputy Chairman's Office), London Transport Executive, has been appointed Works Officer.

Mr. W. Hackett, Jr., and Mr. R. D. Young have been appointed Assistant Managing Directors of Tube Investments Limited.

Mr. George Smith, Stationmaster, Glasgow, Queen Street, has been appointed Stationmaster, Glasgow Central. He succeeds Mr. W. M. C. Scott, whose retirement was recorded in our March 6 issue.

Mr. G. R. Evans, General Assistant to the Assistant General Manager (Traffic), Eastern Region, British Railways, has been appointed to a newly created position of Commercial Superintendent, in the Department of the Continental Traffic & Shipping Manager.



Mr. D. S. Jewell
Appointed Assistant Signal Engineer (General),
B.R. Central Staff

Mr. D. S. Jewell, M.I.R.S.E., Divisional Signal Engineer, Manchester, London Midland Region, British Railways, who, as recorded in our May 1 issue, has been appointed Assistant Signal Engineer (General), British Railways Central Staff, was educated at Westminster School and City & Guilds College. Mr. Jewell joined the former London Midland & Scottish Railway, as an apprentice in the Signal & Telegraph Engineer's Department, in 1936. After gaining experience at Kentish Town, Watford, Crewe, Derby and Euston he was appointed Clerk of Works at Crewe, in 1939, for the installation of colour-light signalling North and South of Crewe Junction. In 1940 he joined the R.A.F. as a Signals Officer and, on demobilisation, in 1946, returned to the L.M.S.R. as a Technical Assistant in the Signal & Telegraph Engineer's Office, Euston. Mr. Jewell was appointed Development Assistant to the Signal & Telecommunications Engineer, London Midland Region, in 1948, and became Assistant Divisional Signal & Telecommunications Engineer, Manchester, in 1953. He was appointed Divisional Signal Engineer, Manchester, in 1955.

Mr. G. F. Carr, Dunlop Rubber Co. Ltd., has been elected Chairman, Plastic Foam Section, British Cellular Rubber & Plastics Manufacturers' Association.

Mr. W. P. Warren, Commercial Manager, Industrial Group, United Kingdom Atomic Energy Authority, becomes Sales Director, Cambrian Wagon & Engineering Co. Ltd.

Mr. P. T. Thornhill has been appointed Assistant Chief Engineer (Contracts), Switchgear Department, Metropolitan-Vickers Electrical Co. Ltd.

Mr. T. A. Stone has been appointed Special Assistant to the President, International Nickel Co. of Canada, Ltd. He was formerly Canadian Ambassador to the Netherlands.

Mr. R. Gavin Orr has been appointed Managing Director of T. C. Jones & Co. Ltd., a member of the George Cohen 600 Group Limited. He succeeds Mr. I. Levin, who is retiring. Mr. Levin will remain a director of the company.



Mr. E. A. Rogers
Appointed Assistant Signal Engineer
(Modernisation), B.R. Central Staff

Mr. E. A. Rogers, M.I.R.S.E., Assistant Signal Engineer (Modernisation), Eastern Region, British Railways, who, as recorded in our May 8 issue, has been appointed Assistant Signal Engineer (Modernisation), British Railways Central Staff, joined the London & North Eastern Railway, in 1925, as an apprentice at Finsbury Park, and later was transferred to the technical staff of the Telegraph Superintendent. He was appointed Senior Assistant in charge of the drawing office of the Assistant Chief Engineer (Signals), King's Cross, in 1947. He became Indoor Assistant on the formation of the Signal & Telecommunication Engineer's Department, Eastern Region, in 1948, and subsequently was appointed Assistant Signal Engineer (New Works). He has been closely concerned with many major signalling schemes carried out since the war. From August, 1953, until September, 1954, Mr. Rogers was seconded to the United Nations Technical Assistance Administration as Principal Lecturer, to establish the Railway Training Centre at Lahore, Pakistan. He was appointed Assistant Signal Engineer (Modernisation) in 1957, the appointment he now relinquishes. He has been a member of the Council of the Institution of Railway Signal Engineers since 1957.

C.P.R. APPOINTMENTS

The Canadian Pacific Railway announces the following appointments, consequent to the retirement of Mr. L. A. Raymond, General Superintendent, Eastern Region, of the railway:—

Mr. D. N. Macleod, General Superintendent, Prairie & Pacific Regions, Winnipeg, since 1954, is appointed General Superintendent, Eastern Region, Montreal.

Mr. Ernest Elsey, Superintendent, Manitoba District since 1946, becomes General Superintendent Prairie & Pacific Regions.

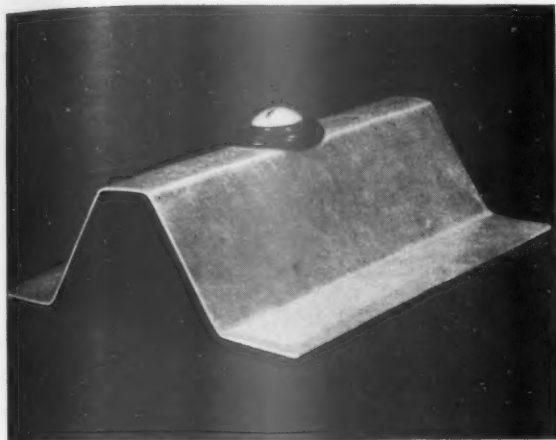
Mr. E. J. Awishus, Superintendent, Algoma District since 1954, becomes Superintendent, Manitoba District.

Mr. C. W. Taylor, Superintendent, Broadcast Services, Montreal, since 1955, becomes Superintendent, Algoma District.

Mr. G. G. Shaw, General Superintendent, Winnipeg, becomes Superintendent, Broadcast Services, Canadian Pacific Communications, Montreal.

Mr. W. H. Oke has been appointed Assistant Superintendent Broadcast Services, Canadian Pacific Communications

NEW EQUIPMENT AND PROCESSES



Roof Washers

AN improved and cheaper version of the Dowty "Spat" has been introduced. It provides a quick, effective weather-proof seal for hook-on seam-bolts, screws and drive nails.

It is basically a plastic washer which remains pliable under all climatic conditions and is unaffected by industrial fumes.

It is claimed to be impervious to water and does not shrink or swell. Being resilient it continues to exert pressure on the nut, holding it in compression. The risk of damage to asbestos or galvanised sheeting by excessive tightening is practically eliminated.

Its light weight—only $\frac{3}{4}$ lb.—facilitates transport and storage and, as it is in one piece, is quickly fixed.

The illustrations show the spats fixed to opaque and transparent demonstration sections.

Further details may be obtained from the manufacturer, Dowty Seals Limited, Ashchurch, Gloucestershire.

Electronic Train Indicator

A NEW train time indicator will be on exhibition at the forthcoming British Trade Fair at Lisbon. Using a magnetic drum as an electronic memory activated by dialled code, the indicator shows the time of the next train on an illuminated panel. Operation of a six-digit dial causes the drum to provide information on destination and time of departure, in international time, to the nearest quarter-hour.

A four-digit display unit indicates the departure time of the next train and a lamp marks the station of departure. A simple "typing-in" keyboard is incorporated so that train times can be changed. Train timetables are written into separate library stores and may be manually selected.

Further details can be obtained from the manufacturer, the Automatic Telephone & Electric Co. Ltd., Strowger House, 8, Arundel Street, London, W.C.2.

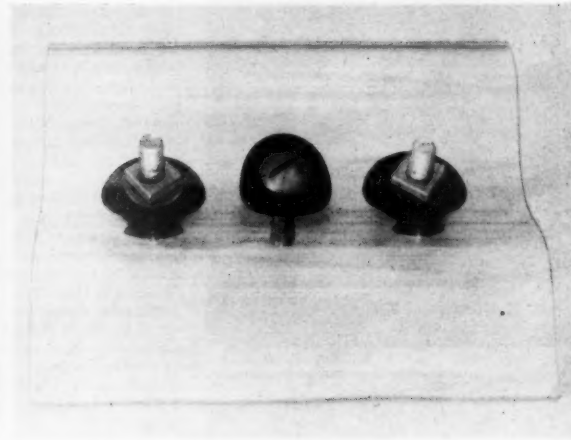
Dust Controller

MAIN advantages of the SPA dust collector which works on a principle of selective particle acceleration are that collection is extended to smaller particle

size, collector wear is eliminated and despite the high collection performance the power consumption is low. It comprises a number of elements housed within a fabricated steel body and a dust-collecting hopper. The number of elements is varied to meet the volume requirements of each application. As separation of the particles is carried out in one operation no secondary system or booster fan is required.

Each element comprises an inner and outer member assembled co-axially. The outer member is formed in two parts; an operating zone and a cylindrical collector tube, the two being welded together. The

operating zone forms a funnel with rapidly decreasing cross sectional area, the upper end being hexagonal in section and the lower end circular to match the cylindrical collector tube. The body of the operating zone is a steel pressing and the collector tube is made either from tubing or fabricated from sheet steel. The inner member comprises a straight length of mild steel tubing, flanged at the top, passing centrally through the operating zone, co-axial with the collector tube and extending a little below the bottom of the operating zone. Within the annular space formed between the operating zone wall and the inner member, are placed six





guide vanes, these vanes being welded to the inside of the operating zone only.

Dust-laden air enters the element over its hexagonal face at low velocity. The guide vanes immediately deflect it into a helical path and as it passes through the nozzle, it is rapidly accelerated along this helical path by virtue of the decreasing cross-sectional area. The air flows approximately two-thirds of the way down the collector tube in this helical path before reversing up the central core of the vortex to leave the element through the inner member. The separated dust flows down the walls of the open ended collector tube to be deposited in the hopper beneath. A straightening vane placed inside the inner member recovers some of the swirl energy and reduces frictional losses by restoring straight flow.

It is claimed that where the dust is of specific gravity 2, 80 per cent of 5 micron and 93 per cent of 10 micron particles are filtered.

Further details can be obtained from Steels Engineering Installations Limited, Crown Works, Sunderland.

Ventilation Shutters and Continuous Ridge Ventilation

POWER-OPERATED roofing shutters, which allow rapid clearance of smoke and fumes, and give adequate natural lighting, can be installed by the manufacturer in any type of roof, without interruption to normal production.

The shutters are powered by a 1-h.p. geared

electric motor controlled by a push-button reversing contactor. Hand operation is provided for emergency use. Lengths of 90 ft. or widths of 10 ft. may be operated, subject to a limit of 500 sq. ft., by one motor. The shutters can be opened to any angle up to 65 deg. with the roof plane.

The shutters are constructed of aluminium troughed sheeting or standard 3 in. corrugated galvanised sheet. Continuous back gutters handle the maximum volume of rainwater. Ladders and catwalks are provided.

The manufacturer will undertake regular maintenance according to working conditions, and a 12-month guarantee of materials and workmanship is offered for standard installations.

The continuous ridge ventilator has been designed for use where general overall ventilation is required. Constructed from anti-corrosive aluminium alloy sheet, it is easily fixed by hook bolts to the ridge purlins. No additional supporting steelwork is required.

Further details can be obtained from Templewood Hawksley Limited, Coldridge Chambers, 177, Corporation Street, Birmingham 4.

Truck-Mounted Crane

THE NL250 is a new truck-mounted crane with a jacked capacity of 25 tons at 10 ft. radius, and 9½ tons up to 10½ tons at 10 ft. radius fully mobile, dependent on Crane Carrier chassis, of which various types are available. Its mobility makes it particularly suitable for use in cases where it is necessary to travel to and from various sites with minimum delay.

Full circle slewing in either direction on patent cross-roll bearing gives even distribution of load and smooth action. All loads can be handled through 360 deg. in either direction.

The crane is direct diesel drive throughout, and is powered by a Ford four-cylinder engine developing 50 b.h.p. A torque converter gives extra torque for heavy loads and automatically increased speed for light loads. All motions are hydraulically operated, fully independent, and can be operated separately or in any combination. The hoisting unit is fitted with engine-controlled lowering.

Lengths of jib are from 30 to 120 ft. Load indicators provide maximum permitted loads at various radii. A 4-ton double drum can be fitted to enable a dragline or double rope grab to be used.

Further details can be obtained from the manufacturer, R. H. Neal & Co. Ltd., Plant House, Ealing, London, W.5.



Multi-Purpose Truck

THE "Buffalo" is a multi-purpose truck with carrying capacities up to three and five tons. It can be fitted with a variety of bodies such as a plain flat carrying floor, a raisable platform, and a dumper. It can be used either as a trailer-hauling truck in passenger stations, a loading truck in goods sheds, or a civil engineer's truck on construction works.

There are two sizes with the load capacities mentioned above. In each, either pneumatic or solid rubber tyres can be fitted. The chassis is built up of steel sections and tubing welded together; axles are suspended on semi-elliptic springs; the driver's platform is a grid-shaped plate at the front end; and steering is by the front wheels, controlled by a tiller moving up and down. Front wheels have a short lock giving good manoeuvring. Pedal and hand brakes are fitted to the rear wheels, applied by a strong spring, and, in the case of the foot brake, release is by pressing down the pedal so that the truck is automatically braked when the driver is not on his platform.

Power is from a single-cylinder horizontal diesel engine, and drive is through a two-step gearbox giving speeds of 4 and 8 m.p.h. Running alone, the 3-ton truck can climb a 1 in 10 gradient with full load, and the 5-ton model can surmount a 1 in 14 slope. Along the level, both models can haul 22 to 25 tons of trailers, and 4½ tons of trailers up 1 in 20.

Further details can be obtained from the manufacturer, Jenbacher-Werke, Jenbach i. Tirol, Austria.



Fares Increase Agreed for British Railways

In an interim decision announced this week the Transport Tribunal has stated its intention to confirm a scheme which will empower the British Transport Commission to raise passenger fares on British Railways services other than on the London, Tilbury, & Southend Line of the Eastern Region, from their present level of 2d. a mile to a maximum of 3d. a mile second class, and from 3d. a mile to 4½d. a mile first class. The Commission will be empowered to apply the increases as from a date not more than one month after the scheme is confirmed.

Scheme Rejected

The draft British Transport Commission (Passenger) Charges Scheme as a whole is rejected, but the Commission is released from the existing obligations to issue early morning fares. No decision has been made as to whether those obligations should cease at once or if they should continue for a time, for how long they should continue, or whether the present early morning fares should be increased.

In considering the case of the London Transport Executive road and rail services, the Tribunal has decided to grant charging powers so that, on the assumption that there is no significant increase in the general level of costs, for this year net receipts shall provide a "just contribution" to the central charges, and that in 1960 and 1961 they would give also surpluses at the rate of about £2,500,000 a year.

With regard to season ticket rates, the Tribunal has asked the Commission to supply a scale of maximum rates so that the difference between those now in force and those proposed is reduced by about half. Also it wants an estimate of the additional revenue which is expected from the adoption of such a scale.

If, within three weeks of the scale and estimate being supplied, any representations are made either by the Commission or by any other objector "of standing," consideration will be given and, if so desired, the public enquiry will be resumed, but the Tribunal is not prepared to consider any representation inconsistent with the interim conclusions announced.

Further Railway Closures in Northern Ireland

Lord Glentoran, the Northern Ireland Minister of Commerce, stated recently in the Northern Ireland House of Commons, that "harsh economic facts" would make further railway closures inevitable.

He was speaking during a debate on the annual report of the Ulster Transport Authority. They were talking, he added, against a background of accumulated railway losses approaching £6,000,000. The U.T.A. was engaged on a comprehensive review of all sections of the undertaking, as the basis of vital decisions which would have to be taken. Further closures of uneconomic sections might be unavoidable. Extensive closures had already taken place and economies had thereby been secured. The principal cause of these previous closures was still operating adversely for the sections which still remained open to competition from private road transport.

Both the U.T.A. and the former Great Northern Railway, Lord Glentoran went on, had sought operating economies besides savings from railway closures. Adoption of diesel traction had already extended more than half the mileage run and, with the additional equipment now coming forward, the Authority hoped to run all its winter

services by diesel trains. Other factors had operated adversely for the railways. Wage rates had risen substantially in recent years.

Road Transport Preferred

"It is, therefore, natural," remarked the Minister, "that we should all feel apprehension about the extent to which uneconomic railway lines can survive in conditions where the communities which they serve increasingly prefer road transport for the convenience and flexibility which it offers, especially over the short distances such as we have in Northern Ireland."

If the U.T.A., after its comprehensive review, found that it must propose further closures, the statutory procedure for the examination of the Authority's proposal would operate. Objections could be lodged and the Transport Tribunal would sit to hear objections.

He pointed out that, despite all difficulties, the Authority, before the absorption of the G.N.R. in 1958, had been able to make a trading profit last year, and taking the last two years together, there was a profit after full provision for interest charges.

Metal Surgery on a 6,000-ton Press

Fracture of the steel bed and bed plate of a 6,000-ton press in a wheel forge at the works of Steel, Peach, & Tozer, Rotherham, caused stoppage in production of certain types of railway wheels. The fracture was on both sides of the 4-in. thick (double 2-in.) walls of the cast-steel bed and running into the column casing.

A new bed was ordered, but the immediate problem was how to replace the fractured bed with a minimum loss of labour and production time. It was estimated that the preparation of a new bed would take anything up to ten months, and renewal would entail the laying of a railway track into the forge, the removal of a section of roof immediately over the press, and the erection of two cranes in the space provided to make four lifts of 40 tons each, to expose the bed for removal.

With this prospect in mind, it was decided

to consult the Sheffield branch of the Metallock organisation which, after surveying the damaged press, undertook to repair it by the "cold stitching process" without dismantling. It was estimated that the repair would be completed within 14 days.

40 ft. of Cold Stitching

The total length of the fracture to which cold stitching had to be applied was 40 ft., as separate repairs had to be carried out on each side of the metal. Two Metallock operators from Sheffield started work at eight o'clock the following morning, and by midday, they were joined by six others from London, Liverpool, and Newcastle. By working in shifts the eight operators completed the repair in 10 days, and the press was back on production work 11 days after the Metallock operators had arrived.

Delivery of the new bed took place in December, 1958, but before this was installed, the repaired one had given 11 months' constant service. The carefully-timed and dovetailed work of dismantling and re-assembling the press was carried out in seven weeks, and this released the old repaired bed for detailed inspection. It was a matter of satisfaction to the operators of the press and to the Metallock organisation that the repair was still completely intact and, for practical purposes, a permanent repair.

Barking Flyover Completed

Both lines over the main flyover at Barking British Railways, Eastern Region, came into full use last Monday. The up line was first used in January this year and the other line has now been completed.

The flyover is a quarter of a mile in length, has a gradient of 1 in 80 and has accounted for nearly 20,000 tons of concrete. It carries the heavy and growing freight traffic between North Thames-side and all parts of the country across the intensively used Southend lines and local electric passenger lines and so eliminates crossings on the level east of Barking Station. Boat trains between St. Pancras and Tilbury will also use the flyover.

The dive-under just east of the station and



Cast-steel bed of dismantled 6,000-ton wheel press showing Metallock stitches intact after 11 months of service

a second flyover west of the station remain to be finished, to enable cross-platform interchange between London, Tilbury & Southend line trains and District Line services. This stage of the work will be completed towards the end of the year.

A new signalbox is being built to replace the existing boxes at Barking West and East and will control all train movements as far west as Plaistow and east to Hornchurch.

Work will commence shortly on the reconstruction of the station buildings, both at street and platform level and the provision of a modern booking hall. The rebuilding at street level will be undertaken in collaboration with the Barking Corporation and a road widening scheme will be co-ordinated with the work at the station.

Nickel-Cadmium Starting Batteries

In a search for better service from the batteries used for diesel engine starting on mechanical refrigerator vans, tests in the U.S.A. by the Pacific Fruit Express Company have shown that sintered plate nickel-cadmium batteries promise to give over 10 years more service than the conventional lead-acid batteries which they are to replace.

The new batteries, which are supplied by Sonotone Corporation, New York, also have demonstrated better performance at low temperatures. Another advantage of the new battery is its comparatively small size and weight. The 12 V. Sonotone battery used in the American company's refrigerator vans has a 60 Ah. capacity and weighs only 62 lb. The 12 V. lead-acid battery it is replacing weighs over 100 lb. The Sonotone battery consists of 10 cells stacked in a row. It is 8½ in. high, 5 in. wide, and 18 in. long.

About 1,500 nickel-cadmium batteries already are in service in Pacific Fruit Express refrigerator vans. Each cell is made up of plates of carbonyl nickel powder, developed by the Mond Nickel Co. Ltd., sintered on a foundation of nickel wire mesh. The resulting structure to retain the active material is rugged but porous. This provides the very large, effective plate area needed to permit high charge and discharge rates. Nickel oxide is the active material in the positive plate; metallic cadmium in the negative. The electrolyte is a 30 per cent-by-weight solution of potassium hydroxide in distilled water.

Staff and Labour Matters

National Council for the Omnibus Company

Against the advice of the Union's Executive Committee, the Amalgamated Engineering Union National Committee decided last week at Eastbourne to withdraw from negotiations conducted by the National Council for the Omnibus Industry, which represents the provincial private bus companies. Instead, the A.E.U. itself will conduct separate negotiations on behalf of the skilled maintenance men. The other unions represented on the National Council are the N.U.R., the E.T.U., the National Union of Vehicle Builders, and the National Union of General & Municipal Workers.

Bus maintenance men feel that there is a movement towards placing wages of platform staff and maintenance workers on the same level. In the course of the discussion leading up to the A.E.U. decision it was stated that for a long time A.E.U. members employed by the bus companies have complained of an apparent lack of drive to improve or even maintain the relative position of skilled maintenance workers. This they feel is due

to the link up with the general workers unions.

A.S.L.E. & F. Annual Meeting of Delegates

Speaking at the Society's Annual Assembly of Delegates last week, the President of the A.S.L.E. & F., Mr. J. L. Simons, stated:—

"I want it to be known that the footplate-men of this country are not prepared to subsidise the industry by having any further worsening of their rates of pay or conditions of service."

The increasing momentum of the modernisation plan and the deflationary measures adopted by the present government had brought to their industry the problem of increasing redundancy and had given rise to considerable hardship and distress in many areas. The running down of the nation's industrial output had had a disastrous effect upon the financial position of the British Transport Commission.

Questions in Parliament

Displacement of Railway Workers

Mr. William Ross (Kilmarnock—Lab.) asked the Minister of Labour on May 4 whether he was aware of the serious unemployment position in the Kilmarnock area; and if he would consult with the B.T.C. to ensure that this will not be aggravated by decisions taken by them.

Mr. Iain Macleod, in a written answer: The unemployment rate in the Kilmarnock area is 3.5 per cent; I understand that the Commission is at present undertaking a general review of railway workshops as part of the modernisation programme, but that no decisions have yet been made. I am in constant touch with the Minister of Transport & Civil Aviation on this and allied questions.

African Railway Workers

Mr. J. B. Hynd (Attercliffe-Sheffield—Lab.) asked the Secretary of State for the Colonies on May 5 to what extent it was intended to implement the trade union scheme for the advancement of African railway workers in Northern Rhodesia and Nyasaland, which has been agreed by the Federal Government; when such implementation was anticipated; and what are the reasons for the delay.

Mr. Amery, Under-Secretary of State: I do not know of any such agreed scheme. The remainder of the question would not therefore seem to arise.

Mr. Hynd: A scheme has been submitted for the advancement of Africans on the railways, and discussed in public by the Minister of Railways. He intimated a few weeks ago that he would have a Government meeting to discuss it on April 2, and that the excuse he gave for not implementing it was that this would mean similar arrangements for other industries. If the Minister is not aware of that, he should make some inquiries and let us know the position.

Mr. Amery: The railways are a Federal matter for which I am not responsible.

Mr. Hynd: The Minister has referred to the fact that the Constitution provided for the railways to be a Federal matter, but this is a trade union matter.

Mr. Amery: The Governments of Northern Rhodesia and Nyasaland are responsible for legislation on trade union matters and their consequent administration of the law. They are not responsible for the negotiation of agreements between the Rhodesia Railways, which are in public ownership under the Federal Government, and their employees.

Design of Coaches on Metropolitan Line

Mr. Ronald Bell (Buckinghamshire S.—C.) asked the Minister of Transport & Civil Aviation on May 6 when he expected to

receive the report of the appropriate Transport Users' Consultative Committee regarding the appeal by local authorities and other bodies against the design of coaches which the B.T.C. proposed to introduce on the Metropolitan line service to Amersham.

Mr. Harold Watkinson, in a written answer: The London Area Transport Users' Consultative Committee has started inquiries and is pursuing them as quickly as possible. When they are complete, the conclusions will be forwarded to the Central Transport Consultative Committee, who can make a recommendation to me.

Leeds-Cardisle Line

Mr. C. R. Hobson (Keighley—Lab.) asked the Minister of Transport & Civil Aviation on May 6 what recommendation he had received from the Central Transport Consultative Committee regarding the future of the main line between Leeds and Cardisle.

Mr. Watkinson, in a written answer: None. I am informed that the B.T.C. has put no proposals to the Area Transport Users' Consultative Committees regarding the future of this line.

Parliamentary Notes

Railways as Solution to Traffic Congestion

In a general debate of three hours on May 7, on traffic congestion in the large cities, Mr. Harold Watkinson, Minister of Transport & Civil Aviation and other speakers referred to the importance of the railway services in effecting relief from the roads.

Mr. G. R. Strauss (Vauxhall—Lab.) advocated a new tube from Victoria to Walthamstow. This was something which had been strongly advocated on traffic grounds by almost every authority for a long time. It would be very expensive, about £50 million. This would be far cheaper and far better in relieving traffic congestion than a ring road.

The annual cost of such a tube would be heavy and might amount to about £3 million a year. There seemed to be justification if the Government were spending substantial sums of money, as they must do, to relieve road congestion, for subsidising a development of this sort which was an alternative way of doing the same thing.

Mr. Harold Watkinson, said: "We delude ourselves if we think that our cities will live if their transport is catered for only by the private motor car and if public transport is thrown on to the scrap heap. The proof of that is to be found in the sobering thought that every day British Railways provides for 3.5 million passenger-journeys and buses provide every day for 50 million passenger-journeys. What I think we want to do is to try and fit the pattern of our public transport into a slightly new concept in our cities, and I hope that is one of the things which the London Travel Committee will do . . ."

On the railways, he added, there must be more electrification. Stage one of the North Kent Coast line would start in June; London-Southend will be completed in 1961; and the Metropolitan Line schemes in 1962. London Transport was spending £15 million on new rolling stock for the tubes, and there again modernisation should bring a much better service and enable public transport to carry a greater share of the load.

The Victoria Line was not by any means disposed of or buried by being put to the London Travel Committee. This issue had been before the House of Commons for many years. It should be looked at again in the light of the future plans they were trying to make. He hoped the report on it would reach him in June.

Earlier in his speech, the Minister was interrupted by Sir Wavell Wakeford (St. Marylebone—C.), asking if he had any

plans for utilising space over railways. The sort of thing he had in mind was the extension of the Western Avenue right up through the north side of Bayswater Road to Marble Arch. There was a market for that type of scheme.

Mr. Watkinson: I do not disagree with that. I have mentioned the scheme in Birmingham, where we hope to build some 2½ miles of road over the railway as the best way of getting through a congested area. I think that we must see whether we can do more of this road-over-rail treatment in our cities.

Contracts and Tenders

South African Railways has placed an order with the Vapour International Corporation, Chicago, U.S.A., for 26 steam generators for heating passenger coaches hauled by electric locomotives. The cost of the generators is some £2,250 each.

The London Transport Executive has placed a contract with Perrys (Ealing) Limited, for the extension of the lifting shop at Northfields Depot. The value of the contract is approximately £53,000 and the work will take 65 weeks.

British Railways, North Eastern Region, has placed the following contracts:—

T. Storey (Engineers) Limited: fabricated steelwork for temporary girders for bridgeworks

R. Dodds & Sons: demolition Middlesbrough and Newport Motive Power Depots

Wellerman Bros. Ltd.: replacement of arch bridge by steel girder bridge, Cooper Bridge No. 182

Girtings Ferro-Concrete Co. Ltd.: concrete bridge beams for crossing Stainsby Beck, Newport Marshalling Yard

M. Harrison & Co. (Leeds) Ltd.: earthworks, Crofton District Engineer's Permanent Way Depot.

British Railways, Southern Region, has placed the following contracts:—

Geo. Wimpey and Co., Ltd.: strengthening and drainage of embankment, Bickley Station and Bickley Junction

The Cementation Co. Ltd.: foundation piling, Sherborne Signalbox

W. H. Gaze & Sons Ltd.: new car park, Staines Central

Taylor Woodrow Construction Limited: new continental goods shed, Hither Green

Bective Electrical Co. Ltd.: electrical installation, Victoria Carriage Cleaning Shed

Kitson's Insulation Limited: insulation of cold water service, Yeovil Town Motive Power Depot

Durable Asphalte Co. Ltd.: asphaltting of station roofs, Motpur Park Line

G. E. Prince & Son Ltd.: new signalbox, Winchester City

John Mowlem & Co. Ltd.: erection of new electrical repair shop and inspection shed and ancillary buildings, Ashford (Kent) Chart Leacon

Macartney & Sons: roof repairs, Nine Elms Goods Yard "C", "H" and "J" sheds

James Longley & Co. Ltd.: new loading dock and ancillary works, Crawley New Goods Yard

The Cleveland Bridge & Engineering Co. Ltd.: new footbridge, Victoria Ecclestone bridge

Meridian Airmaps Limited: aerial survey, Lancing

James Contracting & Shipping Co. Ltd.: dredging, Bembridge, Isle of Wight

W. & J. Glossop Limited: resurfacing

and surface dressing of roads, footpaths, and station platforms, Exeter District

R. J. Barwick & Sons Ltd.: new staff accommodation, Dover Priory Station

Truett & Steel Limited: station improvements, Riddlesdown

Hunting Aerosurveys Limited: aerial surveys, Paddock Wood-Ashford-Bexhill

Meridian Airmaps Limited: aerial surveys, Eridge-Eastbourne-West St. Leonards

and Brockenhurst-Poole-Lymington

Fairey Air Surveys Limited: aerial surveys, Basingstoke-Winchester-Brockenhurst

W. & J. Glossop Limited: new car park, Wokingham.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From South Africa:

36 wharf buffers 12 in. dia. round

rubber, each 10 ft. long, with 4 in. dia. hole lengthways through centre.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. E.7772: Wharf Buffers" should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date is May 29, 1959. Local representation is essential. The Board of Trade reference is ESB/10855/59.

Further details regarding the above tender, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call for tenders from Portuguese East Africa for a remote-controlled signalling installation, recorded in our issue of April 3, has been postponed to June 12, 1959.

Notes and News

Ransome & Marles Bearing Co. Ltd. Branch Offices.—The latest of four entirely new branch offices to be opened by Ransome & Marles Bearing Co. Ltd., is at 42, London Road, Southampton, telephone: 28871. Mr. G. D. Ball is manager. The others are at Dundee, Liverpool, and Cardiff. In addition to extensive factory rebuilding, five area offices have been moved to new and larger premises.

London Transport Country Bus and Coach Service Alterations.—Summer services on most of the London Transport Executive country bus and coach routes came into effect on May 13. Better services are being provided on Sundays on certain routes which serve beauty spots and other centres of attraction, and adjustments have been made to some services to improve peak-hour frequencies or connections with trains and other buses on other days of the week.

N.E. Region Private Automatic Branch Telephone Inauguration.—The accompanying illustration shows Mr. T. H. Summerson, Chairman of the North Eastern Area Board, British Transport Commission, inaugurating British Railways, North Eastern Region, private automatic branch telephone exchange

at York on May 5, in a telephone conversation with Sir Brian Robertson, Chairman of the British Transport Commission, who was in Brussels at the time. On his right is Alderman L. Daley, the Sheriff of York, and Mr. C. O. Boyse, Managing Director, Automatic Telephone & Electric Co. Ltd., and on his left Mr. H. A. Short, General Manager, North Eastern Region, and Mr. G. H. Kitson, member of the North Eastern Area Board.

One-day Railway Strike in France.—Traffic on the main lines of the French National Railways is reported to have been only 30-40 per cent below normal during the 24-hr. strike on May 6. Paris suburban services were more seriously affected. The strike was largely a protest against a reduction in earnings of footplate staff caused by increasing replacement of steam by electric locomotives.

"Pink Champagne."—An excellent performance of "Pink Champagne," an adaptation by Eric Maschwitz and Bernard Grun of Johann Strauss' "Die Fledermaus," was given by the London Midland Region (London) Amateur Musical Society at the Scala Theatre, London, W.1, last week. This lively and vivacious musical play provided a good vehicle for the personalities of Judith Pearson, Joan Brandley, Doreen



Mr. T. H. Summerson inaugurating the North Eastern Region Private Automatic Branch Telephone Exchange at York (see page 562)

Wiggins, and Wynne Boothby. The leading male roles were well depicted by William Taylor, Cyril Howcroft, William Walker, George Aitken, and John Ahern, and the subsidiary characters were admirably portrayed by Miriam Ahern, Eileen Driscoll, Wallace Glover, George Harrison, Harry Simnett, and John Giles. The Musical Director is to be congratulated on the performance of the attractive music of this play.

Train Runs Back Through Crossing Gates.—

The 5.21 p.m. train to London, standing in the station at Ware, British Railways, Eastern Region, on May 8, suddenly ran backwards into level crossing gates which had been closed behind it. The rear coach went through the gates, hit a motorcar passing over the line, and pinned a cyclist between the buffers of the carriage and the broken gates. The driver of the motorcar and the cyclist were treated in hospital, but not detained. The train resumed its journey 20 min. late.

Argentine Minister of Transport Inspects London Transport.—

Dr. Albert Lopez Abuin, Minister of Transport, Argentine Republic, spent a day last week with London Transport. He travelled in the driver's cab of a District Line train and inspected signalling installations. In the cab of a Piccadilly Line train, Dr. Abuin then travelled to Piccadilly Circus, and was shown over the station. At Leicester Square he visited the Northern Line supervision room. Bus working in London was explained and a visit was made to the garage and Divisional Medical Centre at Peckham.

Royal Albert Bridge, Saltash, Centenary.—

The left-hand illustration shows the opening on May 1 of the Royal Albert Bridge Centenary Exhibition of paintings, models, and Brunel relics at the Plymouth Museum & Art Gallery, referred to in the account of the centenary celebrations on page 547 of last week's issue. The ceremony was performed by Sir John Carew Pole, Member of the Western Area Board of the British Transport Commission. Those seated are (left to right): Mr. J. R. Hammond, General Manager, British Railways, Western Region; Mr. R. F. Hanks, Chairman, Western Area Board; Mrs. S. Lloyd Jones; Mr. K. W. C. Grand, Member, B.T.C.; the Town Clerk of Plymouth (Mr. S. Lloyd Jones); Alderman H. G. Mason; the Lady Mayoress of Plymouth; Sir John Carew Pole; the Lord

Mayor of Plymouth (Alderman G. J. Wingett, and the Mayor of Saltash (Alderman W. T. H. Stanlake). In the evening the bridge was floodlit. The right-hand illustration shows one of the portals with the inscription added by the directors of the Cornwall Railway after Brunel's death.

Railway Broadcasts.—"On Railways," the first instalment of a monthly magazine programme, was broadcast, on May 11, in Network Three of the B.B.C. The half-hour programme is intended to cater for the railway enthusiast. The first edition included a bulletin of recent events on British Railways, and a talk on 25,000-V electrification by Mr. Richard Hope, of the Chief Mechanical & Electrical Engineer's Department, Eastern Region.

Britain's Railway Queen.—The Crowning of Britain's Railway Queen this year will take place on Saturday, September 12, in connection with the Railway Employees' Carnival at Belle Vue Gardens, Manchester. The Rt. Hon. Lord Rusholme, Member of the British Transport Commission and Chairman of the London Midland Region Area Board, and Mr. A. Hallworth, General Secretary of the Associated Society of Locomotive Engineers & Firemen, have accepted the invitation of the Council of the Railway Queen to be the Joint Presidents of the occasion and to officiate jointly at the Crowning Ceremony. They will be supported by railway officials of all regions and representatives of the railway trade unions. Further details can be obtained from the General Secretary of the Railway Queen's Council, Mr. W. H. Ferran, 155, Holmcroft Road, Gorton, Manchester, 18.

British Railways Whitsun Holiday Arrangements.—British Railways, North Eastern Region, has announced that during the Whitsuntide period, May 15, to May 19, 1959, there will be 454 additional trains. Of these, 288 are relief trains and 166 excursion trains. Of the relief trains, 185 will originate in the Region, 77 will run into and terminate within the Region, whilst 26 are trains passing through but serving stations within the Region. These intensified services will involve many alterations to normal train services. A Sunday service of trains will operate on Whit Sunday. On Whit Monday and Tuesday, an augmented weekday service will operate, although various

morning business trains will be cancelled. The Eastern Region is to run 418 additional main line trains. Many will run from London to serve the West Riding of Yorkshire, Newcastle, Edinburgh, Glasgow, and Aberdeen as well as the principal towns and holiday resorts in East Anglia. Over the holiday period 18 relief trains will be run from and to Liverpool Street in connection with the regular night and day cross-channel steamship services between Harwich and the Hook of Holland. An extra night service sailing has been arranged for May 15, to cope with exceptionally heavy bookings.

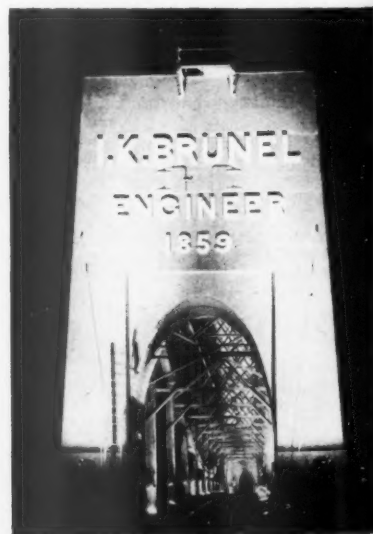
Road Casualties in March.—There were 14 fewer deaths on the roads of Great Britain in March this year than in March, 1958. The number of pedestrians killed fell by 37 to 163, while fatalities among the occupants of motor vehicles, other than motor cycles, rose by 20 to 114. In addition 50 pedal cyclists and 88 riders of motor cycles, scooters and mopeds lost their lives, making a total for all groups of 415. Total casualties, including the above increased by 3,857, or nearly 20 per cent on March, 1958. Traffic on main roads was estimated to be 18 per cent heavier.

London Midland Region Ambulance Competition.—The finals of the 1959 British Railways, London Midland Region Ambulance Competition were held at Belle Vue Gardens, Manchester, on May 5. Nine men's teams and six women's teams competed. Highest aggregate scores were made by St. Pancras "A" men's team with 499 marks out of a possible 600, and by Manchester, London Road women's team with 442½ marks. In the women's pairs competition, Horwich obtained the highest score with 124½ marks out of 200. Lord Rusholme, Chairman, and Mr. David Blee, General Manager of the London Midland Area Board, British Transport Commission, were among those present. Mr. H. Aidley, Regional Establishment & Staff Officer, presided and the trophies and prizes were presented by Mrs. R. F. Summers, the wife of the London Midland Area Board member.

C.I.M.A.C. 1959 Conference.—More than 700 delegates, from 22 countries, so far have registered with the German National Committee for the 1959 Conference of the International Congress on Combustion Engines, to be held at Wiesbaden, June 14-19. Advance copies of the 35 papers have been



Opening the Royal Albert Bridge Centenary Exhibition



The floodlit bridge on May 1

distributed to the delegates. A wireless simultaneous interpretation communication system will be furnished by Siemens and Halske Company. Fourteen international conference interpreters will translate into French, English and German. A programme of social events has been arranged. An official report of the conference, price DM75, will be handed to delegates, and, at the end of the session, further copies will be available, at DM90, to other interested persons.

Eastern and North Eastern Region Day Tourer Tickets.—The Eastern and London Midland Regions of British Railways have introduced another new type of tourer ticket. A day tourer ticket, second class only, is available for one day and gives the bearer unlimited travel over a very large area of Yorkshire, Derbyshire, Nottinghamshire, and Lincolnshire at a cost of 17s. 6d. for adults and 8s. 9d. for children between the ages of 3 and 14 years.

Western Region Fire Drill Competitions.—Twenty teams of railway firefighters from all parts of the Western Region of British Railways competed in the finals of the Regional Fire Drill Competitions at Marylebone Goods Station last Wednesday. Eliminating contests had already been held in the various Districts of the Region. The competitions consisted of two-man bucket/extinguisher drill, three-man hydrant drill and five-man trailer pump drill.

Demonstration Run by Metropolitan-Vickers-Diesel-Electric Locomotive.—A demonstration run on one of the Metropolitan-Vickers Type "2" 1,250 h.p. Co-Bo diesel-electric locomotives recently put into service on the Midland Division of British Railways, London Midland Region, was given on April 28 on the former Midland Line from Manchester Central Station to Buxton and return. The Buxton route was selected to demonstrate the capabilities of the diesel-electric locomotive on difficult gradients. Passengers in the train included Mr. J. Royston, Divisional Traffic Manager, together with representatives from Metropolitan-Vickers Electrical Co. Ltd., and Crossley Brothers Limited.

Strengthening Runcorn Viaduct.—Work is to be carried out on strengthening and waterproofing of Runcorn Viaduct, British Railways, London Midland Region, between May 24 and June 7, as a preliminary to the electrification of the line. The two tracks over the bridge are at present carried on longitudinal timbers on a plate deck supported by cross girders and rail bearers. Repairs are needed at the cross girder connections to the main girders and a number of cross girders require to be strengthened. Because of electrification it is also necessary to waterproof the bridge deck and relay the tracks on sleepers and ballast. The cross girder connections are being made good by high tensile bolts and the cross girders strengthened by tensioned high tensile steel rods with anchorages. This work will be completed before the waterproofing and ballasting are carried out.

Reunion at Longmoor Army Training Centre.—Veterans of two world wars met again last Sunday to give a pew to the Garrison Church at their Army Training Centre, Longmoor, Hampshire. The men, all railwaymen or retired railwaymen who served together in the Royal Engineers, are members of 156 R.E. Old Comrades' Association. They were from Kent, Surrey, Sussex, Hampshire, Wilts, Dorset, Somerset, and Devon. In the church with them were members of the Army Guild of St. Helena, who were also giving a pew, reservists of

the 156 Railway Squadron R.E., who were at Longmoor for their annual camp, and families and friends. During the service, which was conducted by the camp chaplain, the Rev. A. K. Thomas, the pews were presented by the camp commandant, Brigadier P. D. G. Buchanan, and dedicated by the Assistant Chaplain General, Southern Command, the Rev. W. D. C. Williams. Afterwards soldiers and old soldiers marched past together to the parade ground, where the salute was taken by Brigadier Buchanan, and where the men were inspected by Mr. C. P. Hopkins, General Manager of the Southern Region of British Railways.

North Eastern Region Poster Featuring the Yorkshire Coast.—A new poster, "Yorkshire Coast," produced by the department of the Public Relations & Publicity Officer, British Railways, North Eastern Region, York, is now being displayed at stations throughout the country. Designed by Mr. Gyth Russell, and lithographed by Jordison & Co. Ltd., Middlesbrough, it shows a diesel train on the stretch of railway line south of Robin Hood's Bay.

H. W. Kearns & Co. Ltd. Representation in Canada.—The specialists in horizontal boring-machines, H. W. Kearns & Co. Ltd., are now represented in Canada by B.S.A. Tools Limited, 228 Norseman Street, Toronto, 18, Ontario, telephone Belmont 3-1209. Kearns representatives for the Provinces of British Columbia and the Yukon still remain B.C. Equipment Co. Ltd., B.C. Equipment Building, 551 Howe Street, Vancouver, 1.

Co-operation in Materials Handling.—Sir Edward Beddington-Behrens, opening the Institute of Materials Handling Conference in London on May 6, said that a serious attempt could be made between countries in Europe to achieve integration on a technical level. He went on to say that in practical terms this meant achieving a large measure of standardisation, both in techniques and equipment in the materials handling field, for it was in the handling and transport of goods, both internally and across national boundaries, that the greatest opportunities occur for savings in cost and time.

Coil Spring Research Laboratories.—At the annual conference of the Coil Spring Federation Research Organisation, held at Hythe last week, Sir R. Salter Bache, the President, described the new laboratories to be ready in July, as the most comprehensive of their kind in the world. A major feature will be a comprehensive electro-plating laboratory presented by W. Canning & Co. Ltd. This will enable further work to be done in the field of hydrogen embrittlement. The research programme for this year includes work to determine the effect of non-metallic coatings and the influence of type of material, heat treatment, and surface finish on the fatigue life of heavy-duty springs.

Elastomers Research Laboratory.—The Du Pont Co. (U.K.) Ltd., has established an elastomers research laboratory at Hemel Hempstead, Berkshire. It will be devoted to work on Neoprene, Hypalon, Vitron and other synthetic rubbers and rubber chemicals marketed by the company in the United Kingdom. Experimental quantities of all the company's products, as supplied to industry, will be produced. An extensive range of physical, chemical and electrical tests will be carried out in the laboratory, which will provide technical assistance to rubber manufacturers and users. Technical development of synthetic rubbers used in railways, and many industries, including the cable trade and engineering will be undertaken.



Poster produced by the department of the Public Relations & Publicity Officer, North Eastern Region

The Skefko Ball Bearing Co. Ltd.—Profit totalling £610,373 by the Skefko Ball Bearing Co. Ltd. for 1958 may be compared with £596,885 for the previous year. The final dividend is 9½ per cent, making a total of 12 per cent.

John Summers & Sons Ltd.—A one-for-two capitalisation issue is to be made by John Summers & Sons Ltd., to bring the issued share capital more into line with the value of the assets now being employed. Gross trading profits for the 27 weeks to April 4, 1959 amount to £6,900,000 compared with £6,880,000 for 26 weeks to March 29, 1958.

English Steel Corporation Limited Dividend.—A final dividend of 7 per cent has been recommended by the directors of the English Steel Corporation Limited for the year ended December 31, 1958. The net group profit for the year was £2,275,152 (£2,683,817) after charging taxation of £2,270,124 (£2,153,065).

British Wagon Co. Ltd.—Profit for 1958 by the British Wagon Co. Ltd. amounted to £261,118 after providing for taxation and minority shareholders. In 1957 it was £180,083. The Chairman, Mr. R. A. Dyson, states that the increase in deferred income, from £1,190,195 to £1,534,432, has been a good basis on which to start 1959.

Modernisation by William Denny & Bros. Ltd.—An extensive modernisation scheme is almost completed in the shipyard at Dumbarton of William Denny & Bros. Ltd., builders of many ships for British Railways, and the former Southern Railway. The project involves reducing the number of berths from seven to four and a new fabrication shed capable of handling pre-fabricated sections up to some 45 tons, felt to be the economic maximum in a yard building Channel packets and other vessels up to about 500 ft. long. Typical of Denny products is the new car ferry, *Maid of Kent*, which will shortly join the Lord Warden on the Straits of Dover services.

Small & Parkes Limited.—The maker of Don brake and clutch linings, Small & Parkes Limited, Manchester, is moving two of its 30 depots to improved premises. The new addresses are: 28/30, Whalley Banks, Blackburn, Lancs, telephone, 6581, as previously; and 31, Ings Road, Wakefield, Yorks, telephone, 4571, as previously. The last mentioned change of address will not apply until May 25.

Permanent Way Institution Summer Convention.—At the conclusion of the annual summer general meeting of the Permanent Way Institution to be held on June 9, at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 10 a.m., Mr. T. M. Herbert, Director of Research, British Railways, will give a paper entitled "Wheels and rails," illustrated with lantern slides.

International Nickel Co. of Canada, Ltd.—The interim report of The International Nickel Co. of Canada, Ltd., and subsidiaries for the three months ended March 31, 1959, shows net earnings in terms of United States currency of \$16,984,000 after all charges and taxes, equivalent to \$1.16 a common share. In the three months ended December 31, 1958, net earnings were \$9,344,000 or 64 cents a common share, and in the first quarter of 1958, \$12,213,000, or 83 cents a common share.

William Jones Limited Increased Capacity.—A new fabrication and assembly shop has been completed and brought into use at Charlton by William Jones Limited, general engineers and manufacturers of railway and civil engineering plant. It measures 50 ft. x 250 ft. and makes possible a 25 per cent increase in production. The shop is fully equipped and includes three overhead electric cranes. Much of the increased capacity is expected to be absorbed by the assembly of switches and crossings for home and overseas use. The first job is a 325-ft. long layout for Auckland, commissioned by New Zealand Government Railways.

More French Railway Electrification.—The French National Railways has introduced electric traction with 25 kV. 50-cycle a.c. on two more sections of line in North-Eastern France, at Conflans—Pagny-sur-Moselle (21 miles) and at Metz—Lerouville—Bar-le-Duc—Revin (72 miles). Both sections complete links between the already electrified Lille-Bâle line and the Paris-Strasbourg line now in course of electrification, while the second section also covers part of the latter line between Lerouville, Bar-le-Duc, and Revin. The total length of electrified lines on the French National Railways is now 4,251 miles, on 1,056 miles of which 25 kV. 50-cycle a.c. is used. Almost all of the remainder is operated with 1,500 V. d.c.

Associated Commercial Vehicles Limited.—The interim ordinary dividend of Associated Commercial Vehicles Limited, for the year to September 30, 1959, is 5 per cent against 7½ per cent for 1957-58. A special interim of 5 per cent was paid for 1958-59 at the same time as the final for the previous year. The directors state that turnover has been maintained, particularly in the export market, and the effect of purchase tax changes is proving beneficial in the home market. The rationalisation of production is now having effect and results for the six months to March 31 last, show satisfactory improvement as compared with last year. There are indications that this trend will continue, and it is hoped to recommend a final of 10 per cent.

Straddle Carriers Collaboration.—Under an agreement between Short Bros. & Harland Limited, Belfast, and Conveyancer Fork Trucks Limited, Warrington, the last-named company is appointed sole distributor at home and overseas of straddle carriers manufactured by Short Bros. & Harland Limited in Northern Ireland. These vehicles, hitherto called British Straddle Carriers, will in future be known as the "Shorland" range of carriers. The two companies intend to collaborate in the design and further development of straddle carriers and similar mechanical handling equipment.

Forthcoming Meetings

May 16 (Sat.).—Railway Correspondence & Travel Society, Sussex & Kent Branch, at the Railway Hotel, Brighton, at 6.30 p.m. Paper on "Dougald Drummond, the man and his work," by Mr. T. Clyde Britten.

May 23 (Sat.).—Permanent Way Institution, East Anglia Section. Visit to modernisation work at Barking.

June 4 (Thu.).—Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. "Notes on the construction of railway models," a talk by Mr. R. S. Garlick.

June 5 (Fri.).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "The History of the Railway Club," by Mr. B. D. J. Walsh.

June 6 (Sat.) to June 11 (Thu.).—Permanent Way Institution. 75th Anniversary Convention in London.

Railway Stock Market

Strong and active stock markets were again in evidence now that sentiment has been helped by the swing to the right in the Council elections which increased City hopes about general election prospects. Many industrial shares again reached new high levels, due in some cases to news of higher dividend payments, though on the other hand, British Funds again eased, fixed-interest stocks as a whole being out of favour, because buying is centred on equity shares.

Railway stocks were inactive and showed no particular feature, though Canadian Pacific reflected an easier trend on Wall Street and at \$52½ compared with \$53½ a week ago; the 4 per cent preference stock kept at 54 but the 4 per cent debentures eased from 66 to 65½. White Pass shares rose from \$13½ a week ago to \$14½. Nyasaland Railways shares kept at 13s. 9d. and the 3½ per cent debentures at 59½. Business at 10 was recorded in Midland of Western Australia income debentures. West of India Portuguese capital stock at 105½ and the 5 per cent debentures at 91½ were the same as a week ago.

International of Central America strengthened from \$23 to \$24½ and the preferred stock from \$110 to \$112. Antofagasta ordinary stock eased slightly from 13½ to 13½ and the preference stock remained at 26.

Guayaquil & Quito Railway assented bonds have been marked up from 80½ to 82½. Costa Rica ordinary stock was again 13½ and Brazil Railway bonds kept at 5½. Chilean Northern 5 per cent first debentures have changed hands at 58.

Mexican Central "A" bearer debentures were 59½. San Paulo Railway 3s. units kept at the lower level of 1s. 6d. recorded a week ago, and United of Havana second income stock remained at 1s. 6d.

Among shares of engineering and locomotive building companies, North British Locomotive rallied from 9s. 9d. to 10s. 3d., while Birmingham Wagon rose further from 20s. 4½d. a week ago to 20s. 7½d. Moreover, Wagon Repairs 5s. shares rose afresh from 9s. 6d. to 9s. 9d. and Gloucester Wagon 10s. shares moved up from 17s. 6d. to 18s.

On the other hand, G. D. Peters remained at the lower level of 25s. recorded a week ago, but the shares are firmly held, and the quotation does not appear to have been adequately tested by dealings. Elsewhere, Beyer Peacock 5s. shares have receded from 8s. to 7s. 6d. but Charles Roberts 5s. shares strengthened afresh to 12s. 1½d.

The 10s. shares of Dowty group have been firm at 40s. 6d. and Pressed Steel 5s. shares were active around 26s. 3d. Raleigh Industries attracted buyers, but profit-taking put the price back to 29s. 4½d. when take-over rumours were officially denied. B.S.A. were 43s. 6d., A.C.V. 46s. 6d. and Leyland Motors 54s. Steel shares have been active and higher following the decision of John Summers to distribute a scrip issue. Moreover, the growing expectations in the City of a defeat for Labour when the general election comes, are drawing attention to the much increased investment merits of steel shares if the re-nationalisation threat is removed. B.I. Cables were 55s. 3d. Associated Electrical kept at 60s. 3d., English Electric gained 6d. at 64s. 6d. and General Electric put on a similar amount at 32s. 9d. Ruston & Hornsby were in good demand and advanced afresh from 28s. 7½d. a week ago to 30s. 9d. while Stone-Platt Industries at 51s. 7½d. have been quite well maintained, and T. W. Ward at 89s. 9d. more than held their recent rise. Pollard Bearing 4s. shares at 23s. 7½d. were "ex" the scrip issue. Ransomes & Marles 5s. shares have been well maintained at 18s. 1½d. Vickers eased slightly to 33s. 7½d. though the report and accounts emphasise the strong financial position and diversified interests of the group.

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